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Consider Plans For $4,000,000 Pulp Mill

Champion Paper & Fibre Co. Will Build New Plant at Some Advantageous Point in the South—While Location is Not Determined, It is Indicated that Mill Will Probably Be Built in Eastern Texas or Western Louisiana Affording Waterway Transportation to Cincinnati and Thence to Hamilton—Stockholders to Vote on New Issue Feb. 6

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, January 27, 1936—At a meeting of common and preferred stockholders of the Champion Paper and Fibre Company, Hamilton, to be held on February 6 next in Hamilton, a vote will be taken on the establishment of a wood pulp mill to cost approximately $4,000,000 and produce upward of 45,000 tons annually of wood pulp from Southern pine, it was announced here Friday afternoon.

Location of Mill Not Yet Determined

While the exact location of the mill was not given, it was indicated that it would be on an inland waterway of East Texas or Western Louisiana, which would permit waterway transportation to Cincinnati, thence to Hamilton.

It is asserted that the saving in transportation costs by barges to Cincinnati via the Gulf of Mexico, Mississippi and Ohio rivers, justified the expense of building the new mill, one of the largest improvements to be made by any American paper concern this year.

Engineers of the Champion Paper and Fibre Company recently have been in Houston, Beaumont and Orange, Texas, and in Lake Charles, Louisiana, it was learned today, where they made investigations of water and fuel conditions and the supplies of loblolly pine and other pulp woods in the Southern regions.

It was said the mill would be located either in Houston or Orange, depending upon what arrangements could be made for power and at which point the supplies of water from drilled wells would be most adundant.

It was stated the proposed mill would cost between $3,000,000 and $3,500,000, provided it was not necessary to erect a power plant. If this added expense proves to be necessary, the cost of the improvement may exceed $4,000,000, according to estimates.

Stockholders To Vote on Issue

Stockholders will determine by their vote whether to issue 25,000 shares of new 6 per cent cumulative preferred stock and 75,000 shares of common stock, no par, which are to be offered on the market to provide funds for the construction of the new mill. It is understood underwriting of the issues has been arranged for, through banks and brokerage houses in New York and Cincinnati.

Paper Uses and Exhibits at TAPPI Meeting

A special feature of the annual meeting of TAPPI will be a paper packaging exhibit. The important groups of paper containers of all types will be exhibited in order to demonstrate the newest in design, art work and utility.

Packages will be chosen for exhibit from the prize-winning entries of the Retail Dry Goods Association, the Package Show, which will be held next month under the auspices of the American Management Association, and from producers who have created new and especially appealing containers.

The objective of this exhibit which will be sponsored by the Converting and Consuming Division of TAPPI is to assist the manufacturer of paper and also to encourage the user of paper and board to emphasize his needs in terms of the finished article.

Nationally known speakers have been invited to address the meeting which will discuss the package. The Graphic Arts Committee will also discuss the application of color in packaging and in printing of all types. Experts in this field will address the session.

Users of paper and board are urged to visit this exhibit and attend the meetings which will be devoted to the package from the standpoint of the producer and the consumer.

Hold Regional Conference at Holyoke

HOLYOKE, Mass., January 27, 1936—About 35 representatives of the paper-making industry of this region met at the Hotel Nonotuck Friday noon for discussion on matters relative to business; a "general confab," as one of the paper mill men termed it.

This is one of several regional conferences planned for different parts of the country, it was learned, and the first one for this region. The planning and directing of them is being done from the New York office of the American Pulp and Paper Association, following a plan broached at the last session of that body in New York.

Charles Boyce of New York, secretary of that association, presided in the absence of Sidney L. Willson, who was obliged to be in New York on business. Mr. Boyce was accompanied by two statisticians from the New York office.

Flambeau Doubles Bleach Plant Capacity

Park Falls Plant Improvement Made Necessary to Take Care of Large Volume of Orders Received Since Turning to Manufacture of Higher Grades of Paper Last Autumn—President W. A. Munro States New Equipment Will Be in Operation in February

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 27, 1936—Inability to take care of the large volume of orders received since changing to higher grades last fall has made it necessary for the Flambeau Paper Company, Park Falls, Wis., to double its bleach plant capacity. Installation of new equipment for this purpose has been in progress, and will be ready for operation about February 1, according to W. A. Munro, president. When the expansion is completed, the company will be able to bleach the entire output of its sulphite mill.

Another installation that has improved quality is a spray system on the paper machines. A much finer surface, better color and a softening effect are produced by the new process. The Flambeau company is featuring this improvement in an advertising booklet issued to the trade calling attention to the new "Sprayed Flambeau Halftone." The booklet shows sample sheets of both the sprayed and unsprayed sheets, and reproduces the same halftone cut on each to portray the finer reproduction. Another illustration shows the spray system in action on one of the paper machines. No addition is made to the price for the spraying treatment. Reaction of the jobbers has been highly favorable to this better product, the company reports.

New Specialty Plant Planned

Another specialty plant has entered the Wisconsin field, with the announcement last week of the incorporation of the Mack Paper Tube and Core Company, Menasha, Wis. Articles were filed with the register of deeds of Winnebago County, providing for a capitalization of $10,000 divided into 100 shares. The incorporators are J. W. McLaughlin, Ethel S. McLaughlin, and Ambrose Owen, all of Neenah, Wis. The purpose of the company is to manufacture paper tubes, paper cores, paper cans, and other paper and fiber products, and to buy and sell at wholesale and retail, paper products. Arrangements are being made to establish a plant and begin manufacture at an early date.

Forest Products Laboratory Appropriation

An increase from the present annual appropriation of $500,000 to $1,000,000 is sought by the United States Forest Products Laboratory at Madison, Wis., in order to carry on more extensive research work in the new and larger building. C. P. Winslow, director of the laboratory, has been in Washington at hearings for the agricultural sub-committee of the House to point out the situation. Increased activity in reforestation is one of the reasons for the larger budget. The original plan for support of the laboratory was a yearly appropriation with gradual increases until it reached $1,000,000. The amount stopped at $500,000, however, when the depression came. Congressmen Gerald Boileau, of Wausau, Wis., and Harry Sauthoff of Madison, Wis., also appeared before the subcommittee in support of the move.

Thilmany Staff Changes

Retirement of M. A. Wertheimer as president of the Thilmany Pulp and Paper Company, Kaukauna, Wis., was announced at the annual meeting of the stockholders last week. He has been head of the concern for many years, and will continue serving on the board of directors. Karl E. Stansbury, vice-president for many years, has been elevated to the presidency, according to action of the incoming board of directors.

Hereafter there will be two vice-presidents, Elmer H. Jennings, of Appleton, Wis., sales manager of the company; and Marvin Preston, of New York. The offices of secretary, formerly held by George J. Stansbury, Chicago, and treasurer, formerly held by C. W. Stribley, will now be held by Myron T. Ray, Appleton, Wis., as secretary-treasurer. W. A. Voie has been named assistant secretary-treasurer. Mr. Ray has held the position of purchasing agent. Mr. Stribley, who now resides at Fort Myer, Fla., and George J. Stansbury will continue as members of the board of directors.

Felix Pagenstecher Resigns

Felix Pagenstecher, vice-president in charge of sales of the Nekoosa-Edwards Paper Company, Nekoosa, Wis., has tendered his resignation to take effect immediately. John E. Alexander, president of the company, has announced that Adam C. Remley, who joined the organization four months ago as assistant sales manager, will succeed to the position of sales manager. He formerly was vice-president and general manager of the Patten Paper Company, Ltd., Appleton, Wis.

Mr. Pagenstecher came to the Nekoosa-Edwards company two years ago from the Bryant Paper Company, Kalamazoo, Mich. He states that he has plans for the future but is not at liberty to announce his new connections as yet.

News of the Industry

L. A. DeGuere of Wisconsin Rapids, Wis., consulting paper mill engineer, sailed January 15 from San Francisco for his third trip to New Zealand. He has been assisting in arrangements to construct a paper mill on the island for the Timberlands Wood Pulp Company, the first to be erected there.

A new building 30 by 48 feet in size, one story, has been completed by the Ansul Chemical Company, Marinette, Wis. It will house an extensive research laboratory to improve the company's products and develop new ones. Four or five additional chemists will be engaged in this new work.

F. E. Sensenbrenner, assistant secretary of the Kimberly-Clark Corporation, Neenah, Wis., is confined to his home with a broken ankle. He was the victim of an automobile accident near Richfield, Wis., while on his way to Milwaukee. His car was side swiped by a truck and hurtled into a ditch. He was treated at a hospital at Hartford, Wis., and then removed to his home at Menasha, Wis.

Michael H. Niesen, aged 59, who at one time operated the Kaukauna Ground Wood Company, died last week at his home at Kaukauna, Wis. He later became the owner of High Cliff Park, one of the popular recreation and sightseeing points of Wisconsin. Burial was made at his former home at Chilton, Wis.

Canadian Newsprint Exports Establish Record

Shipments During Calendar Year 1935 Amounted to 51,499,744 Cwt., Compared to Previous Twelve Month Record of 50,309,896 Cwt.—American Publishers Association Bulletin Discusses Affairs of Great Lakes Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., January 27, 1936—The Bank of Montreal makes the interesing disclosure that in the calendar year 1935 newsprint exports from Canada established a new record, with shipments of 51,499,744 cwt., the previous record being 50,309,896 cwt. Meanwhile the returning confidence in the long-term outlook of the newsprint industry is shown by continued improvement in the demand on the Montreal Stock Exchange for newsprint issues, with consequent further moderate advance in prices.

The newspapers here interpret as a constructive factor a current bulletin sent out by the American Newspaper Publishers Association with reference to the affairs of the Great Lakes Paper Company.

In effect the report indicates that if the $2 price reduction recently quoted by National Trust Company as receiver is carried into effect it would be regarded by the publishers as establishing a new market price two dollars below the price now prevailing.

It will be recalled that the Gefaell-Aldrich group came to an agreement with the receiver under the terms of which it was stipulated that if the organization of the new company to take over the Great Lakes assets is not completed by April 1, 1936, the receiver offers to reduce the price to $2 a ton less than the 1936 general market prices, with a minimum of $39 per ton f.o.b. Chicago, and to make reduction retroactive from January 1, 1936.

The A.N.P.A. bulletin suggests that should the receiver carry out this offer to reduce prices $2 per ton, as above outlined, several other large mills will be required to likewise reduce their prices by $2 per ton, because of the contract price guarantee clauses by which many publishers have protected themselves. All of which leads to their conclusion that "sales by mills, obligated to meet the lowest price of Great Lakes, are of such large volume that any decrease by Great Lakes will determine the market price for 1936."

The *Montreal Gazette* draws the inference from this that "if the A.N.P.A. prefers to see the Gefaell deal succeed in preference to immediate price cut, which they believe inevitable if the plan fails, they must visualize broad advantages more than compensating."

American Capital for New Pulp Mill

From Vancouver it is announced that San Francisco capital in major part is behind the project for a new pulp mill at Prince Rupert, B. C., construction of which is to get under way within the next two months. Frank L. Buckley is the managing director of the company formed for the project. Originally the company was named British-American Pulp and Paper Company, but following objections by the British Columbia Pulp and Paper Company, the name has been changed to Canadian-American Pulp and Paper Company. It is proposed to build a 250-ton unit at first to manufacture bleached sulphite pulp.

Other B. C. Projects Planned

Several other pulp and paper projects are under discussion at Vancouver.

Dai Thomas, Vancouver promoter, claims to be representing a $15,000,000 British organization which is interested in establishing a pulp mill suitable for production of rayon pulp on Vancouver Island. Several sites have been inspected. So far the chief difficulty has been finding a location offering an ample supply of water. According to Mr. Thomas, his principals plan the establishment of two sawmills to work in conjunction with the rayon plant. The Victoria city council has been carrying on negotiations with Mr. Thomas in the hope that the outer docks may be utilized for the mill.

Vancouver civic authorities are still conferring from time to time with J. P. Meehan and associates concerning the latter's plans for a 500-ton pulp mill at Campbell River, Vancouver Island, or Squamish at the southern terminus of the Pacific Great Eastern Railway.

Negotiations are still proceeding in connection with revival of the Vancouver Kraft Mills. An operating company was formed as a sequel to a meeting of bondholders recently, but no decision has yet been reached as to getting the mill into production. It is estimated that $400,000 will be required to put the plant in condition. C. W. Leadbetter, of Portland, Ore., financed the original mill and prepared it for operation in 1929, but the industrial slump resulted in suspension of all construction and the mill was never put in operation.

Resumption of trade with Japan has been an encouraging development to the Pacific Coast pulp industry, and mills such as British Columbia Pulp and Paper Company and Pacific Mills, Ltd., which have built up an important export outlet in Japan, are hoping to pick up the broken threads this month. Japan's holiday season extends until January 15, so that Canadian mills are not likely to receive orders under the new tariff agreement until February.

Association Cancels Annual Banquet

The Canadian Pulp and Paper Association, out of deference to the death of the King, has cancelled the banquet which was to have been held in connection with its annual meetings. The business meetings and luncheons will be carried out as scheduled. The Canadian Lumbermen's Association, which is holding its annual meetings here at the same time, has cancelled the annual dance which was to have marked the conclusion of the gathering, on February 4.

L. H. McGreen Reports Optimism

L. H. McGreen, sales manager for Joseph Parker & Son Company, blotting paper manufacturers of New Haven, Conn., returned recently from a business trip which took him to the Pacific Coast and nearly every state in the Union. Mr. Green reports that the fine paper dealers appear to be very optimistic except in parts of the South where the depression was late in arriving and also late in departing.

The Joseph Parker & Son Company reports that they have taken on more new paper merchants as distributors in 1935 than ever before.

The New York office of Joseph Parker & Son Company is at 401 Broadway. The company also has a warehouse and office at 77 West Washington street, Chicago, Ill., in charge of George B. Tapner.

Demand for Paper Fairly Active In Chicago

Fine Paper Market Continues Steady, With Bond and Ledger Papers In Excellent Request—Sulphite Bonds Display Strength—Book and Cover Papers Moving in Satisfactory Volume—Kraft Market Exhibits Strong Undertone

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., January 27, 1936—Although biting cold weather put a material crimp in retail selling activity in Chicago during the past week, Chicago paper jobbers and sales representatives experienced a continuation of good business following close on the heels of the termination of inventory period.

Fundamental strength in the pulp markets carried on into local selling and demand was reported as improving. The market structure was firm and in certain instances showed more than nominal betterment. Groundwoods continued to report an increase in the number of inquiries and in actual orders which advertising papers in general found business responding to general improvement.

Bonds and ledgers were in good demand with sulphite bonds said to be stronger. Books and covers, while not reported as strong as other markets, were quoted as "satisfactory." Newsprint showed little change over last week. Paper board markets were fair while the waste paper markets continued the upward trend which has been noticeable during the past few weeks. Krafts were continued strong.

Drawback Bill Protest

From the Chicago headquarters of the National Paperboard Association comes a spirited protest against Federal enactment of S.1421, known as the "drawback" bill, which would permit the use for all exported American merchandise of any packing material with a drawback of all but 1 per cent of the duty paid on such imported merchandise.

According to Sidney Frohman, president of the association, the bill would allow drawback on every form of wrapping, covering or containers with no requirement that such imported wrapping be processed before being re-exported and a drawback allowed. There is no necessity for such a drawback, according to Mr. Frohman. He states that the sale of American merchandise for export would not be facilitated as the cost of the packing would not be sufficient to be materially reflected in the sale price.

Thus the domestic producer of merchandise for export would be given a greater profit, while other American manufacturers would suffer the loss of a market which amounts to a large total. Mr. Frohman points out that the substitution of imported wrapping material in various forms would mean a loss of present tonnage probably amounting to thousands of tons of boxboards.

Members of the association are being sent the statement by Mr. Frohman together with an urgent request that Congressmen be immediately advised of the position of the industry on S.1421. "To allow a drawback on every form of wrapping, covering or container with no requirement that such foreign-made wrappings be further processed in this country before being exported would be a real blow to the industry," says the association. Members operating mills in the home districts of any of the members of the House Ways and Means Committee are being urged to communicate promptly with the Congressmen in their district.

Paper Exhibits In Rotary Exposition

The J. W. Butler Paper Company and the Union Bag and Paper Corporation both had splendid exhibits at the annual Rotary Business Exposition sponsored by the Rotary Club of Chicago and held at the Hotel Sherman, January 21, 22, 23 and 24.

The Butler exhibition, through Lynn W. Lake, the Rotarian in charge, featured Snowflake and Manuscript Bond and provided an interesting proof of the scope of Butler distribution through the use of a lighted map of the United States. The Butler laboratory testing machine was also displayed and the thorough testing of Butler products exhibited to interested visitors.

Union Bag and Paper Corporation, with Brantley A. Weathers, Jr., in charge, displayed the wide variety of paper bags manufactured by the concern and featured the slogan "a bag for every purpose from auto parts to zwieback."

Other firms, not directly allied with the paper industry, had impressive exhibits of paper products. Included among these were Horders, Inc., with a big display of business papers, and the Tallman, Robbins organization, with its loose-leaf equipment. The H. L. Ruggles Company, Chicago printers, also had an interesting display which was beneficial to the interests of the paper industry.

The exposition itself, the third annual event of its kind, occupied 35,000 square feet of space in the Sherman, and Rotarians expected around 30,000 people in attendance during the four-day affair.

Book and Offset Paper Meeting

Richard Bull, of Bradner Smith & Co. and George Cobean, of the Butler Paper Company, attended an important meeting of the book and offset committees of the National Paper Trade Association, held in Detroit on January 14. Mr. Cobean presided at the sessions which drew approximately twenty executives from New York, Philadelphia, Boston, Chicago and other cities. The nature of the deliberations of the committees was not divulged to the press.

Boston Paper Industry News

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 27, 1936—A well-attended luncheon meeting of the Fine Paper Division of the New England Paper Merchants' Association, in executive session, was held Tuesday at the Boston Chamber of Commerce, with Vice-President Frank H. Winter presiding.

A meeting was held at the office of Carter Rice & Co., Corp., Saturday morning, at which Norman Harrower, president of Linton Bros. Company, presented the sales and advertising program of that concern for 1936 to the executives and sales force of the Carter Rice Company.

William N. Stetson, Jr., president of Storrs & Bement Company, is chairman of the Paper Manufacturers and Distributors Group of the Graphic Arts Division of the 1936 Community Chest.

The Andrews Paper Company is distributing to the trade very attractive sample folders of the Champion Paper and Fibre Company, Hamilton, Ohio.

Supply houses of Boston gave a luncheon Friday to the New Hampshire Weekly Publishers' Association at the Hotel Kenmore, where the organization held its annual mid-winter meeting Friday and Saturday.

Better Grades of Fine Paper Active In Toronto

Demand for Book, Bond and Ledger Papers Persistent—Manufacturers Report Encouraging Signs of Enlarged Requisitions—Volume of Sales Running Higher Than in Corresponding Period Last Year—Paper Converting Industry Quiet

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., January 27, 1936—With inventory-taking in full swing in the paper consuming trade, as well as among the distributors and paper mills, business in paper circles in Ontario is quiet, although on the whole the first month of the new year is proving satisfactory as compared with the same month a year ago. A distinctly optimistic feeling prevails throughout the trade based largely on a good wind-up of last year's business, which, for the most part was entirely satisfactory.

January is always a quiet month in the paper trade and this month has proved no exception to the rule but the total sales so far have exceeded those of January last year. Less effect has been felt in respect to the seasonal lull in sales this year and it is likely that the busy season will be on sooner this year than last.

Most of the paper merchants report a distinct trend toward the purchase of better classes of fine papers with a considerably curtailed enquiry for the lower grades. This is true in regard to books, bonds and ledgers. The consuming public represented by advertisers, printers and general merchants are indicating that they have money to spend now on good grades of paper and this is going to help the paper trade generally.

There is quite a fair demand for all classes of paper despite the generally quiet month and the mills report encouraging signs of enlarged requisitions. Coated stock is moving better than it was before the end of the old year and the prospects for that class of paper are said to be good.

Manufacturers of greaseproof, waxing and glassine papers are fairly busy and the year is opening up well with the light weight paper mills, the demand for towels, napkins, toilet and specialty lines holding up very well.

On the other hand, the paper converting trade does not seem to pick up as quickly as manufacturing stationers and others would like to see. The envelope trade is quiet, but manufacturers are looking for better business as the year progresses.

The year opened with coarse paper and paper bag manufacturers and jobbers meeting in an endeavor to stabilize the trades and some progress has been made along this line.

Coarse paper jobbers have had their businesses seriously affected by the many dealers who operate without warehouses and on the proverbial "shoe string" with little or no overhead, which has had the effect of unsettling the market and cutting into the already light profits of the regular dealers. Matters of this sort have been under discussion at various meetings of the coarse paper trade during the past several months and good progress is said to have been made in straightening them out.

Great Lakes Paper Co. Appeal

Western Investments, Ltd., a holder of first mortgage bonds of Great Lakes Paper Company, Ltd., has given notice at Osgoode Hall of an appeal against an order of Justice McEvoy approving a proposed sale of the assets of the company to Lynn A. Aldrich and John E. Gefaell for transfer to a new corporation.

"The judge erred," says the notice of appeal, "in permitting the votes of the holders of approximately 46 per cent of the issued and outstanding bonds to control and deal with the rights of the bondholders as against the objecting votes of holders of 14 per cent of the issued and outstanding bonds and without due regard to the fact that the holders of approximately 40 per cent of the issued and outstanding bonds did not vote at all or express their views as to the so-called offer, and without due regard to the fact that subsequent to the meeting, holders of approximately 22 per cent of the issued and outstanding bonds expressed their disapproval of the so-called offer, though some of their votes had been cast by proxy in favor of the said offer."

Fort William Mill Increases Production

Step-up in production at the Great Lakes mill in Fort William, now owned by the Upper Lakes Pulp and Paper Company, Ltd., will take place early in February, announced Joseph E. Crawford, M. L. A. for Fort William, on his return to Fort William from Toronto. Reorganization plans are moving ahead rapidly, Mr. Crawford was informed authoritatively, and the new company plans to bring the big local plant into increased operation next month.

"Not only will the plant be busier," he reported, "but the entire newsprint industry is in an improved condition. Once more it is on the up-grade, and this should become more manifest as the year progresses." Mr. Crawford expressed gratification at the announcement that the Upper Lake Pulp and Paper Company had received a Dominion charter, and is of the opinion that a brighter future now is in store for the mill.

Affairs of Paper Box Association

C. V. Hodder, secretary of the Canadian Paper Box Manufacturers' Association, in a statement to the membership of that organization on the subject of last year's accomplishments in the paper box field in Canada, says: "We believe that the organization has accomplished a great deal during 1935, both in its representations on behalf of the manufacturer to the supplier, on behalf of the manufacturer to the Government and also on behalf of the manufacturer to the manufacturer.

Pacific Mills Cut Down Debt

Pacific Mills, Ltd., announces redemption February 1, 1936, of outstanding 6 per cent bonds to the amount of $500,000 par value. Bonds to be redeemed have been selected by lot. Bondholders will receive par value plus accrued interest and a premium of 1½ per cent, all payable in United States funds. Last August the company redeemed the balance of the first mortgage serial gold bonds, thereby reducing bonded debt to $1,434,700 in guaranteed subordinated mortgage 6 per cent bonds, due December, 1945. The retirement of $500,000 of the latter bonds February 1 will reduce funded debt to $934,700. The company, which operates pulp and paper mills at Ocean Falls, B. C., and at Vancouver, is controlled by Crown-Zellerbach Corporation of San Francisco.

Philadelphia Paper Industry Outlook Bright

Increased Demand for Various Standard Grades of Paper Comparable to That Experienced Before Depression Years—Although Paper Stock Conditions Are Practically Unchanged, Lower Grades Are Beginning to Attract More Attention

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., January 27, 1936—By and large, the paper trade in Philadelphia believes it is facing a bright outlook for business during the first quarter of the present year. Consuming sources are increasing their allocations for advertising, and firms requiring direct mail advertising are expanding their advertising pieces to such an extent that spells activity, comparable to that experienced previous to 1930.

The waste paper market remains unchanged either from the standpoint of demand or collection curtailment, although it is anticipated that the severe cold weather which we are experiencing here will create a demand for the lower grades, heretofore virtually stagnant in this area.

Association Activities

The regular meeting of the Fine Paper Division of the Paper Trade Association of Philadelphia will be held Tuesday of this week at 3 o'clock in the association's headquarters in the Drexel Building. Ormond Freile, vice president of the Fine Paper Division, will preside.

On Thursday of this week the Wrapping Paper Division of the Philadelphia Paper Trade Association will hold its regular bi-monthly meeting at 1 o'clock in the headquarters of the association. T. H. B. Smythe, vice-president in charge of this Division will preside.

At the recent meeting of the Paper and Cordage Association of Philadelphia, President George K. Hooper stressed the fact that it is his intention and to strive for a membership goal of one hundred by the end of the year. At this writing the membership is comprised of the following:

Acme Specialty Sales Company, John J. Shinners, Jr.; American Manufacturing Company, H. N. Newell; Badger Paper Mills, Inc., O. Kai Madsen; Better Packages, Walter W. Rolfe; Buffalo Envelope Company, E. L. Richards; Denny Tag Company, Harry S. Platt; Diamond Paper & Box Company, B. M. Zieve; Eastern Paper Company, Leslie C. Bartlett; W. V. Edkins; Edwin H. Fitler Company, D. N. Crimmins; Garrett-Buchanan Company, E. A. Keller; Grady Travers Company, H. G. Kleinfelder, Jr.; Hooper Paper & Twine Company, George K. Hooper; J. R. Howarth Paper Company, J. R. Howarth, Jr.; Hummel-Ross Fiber Corporation, L. Fitzgerald; International Paper Company, D. N. Newell; Kalamazoo Vegetable Parchment Company, W. E. Swan, William Hendrie Lloyd; Mather Paper Company, C. W. Mather; Menasha Products Company, George W. Sherburne; Mount Holly Paper Company, Spenser M. Holden; Nashua River Paper Company, C. J. Gorden; Paper Manufacturers Company, Inc.; V. A. Dirvin; Peerless Paper Company, I. J. Sheppard; Pejepscot Paper Company, Arthur Schroeder; Progressive Paper Company, Harry A. Clair; Quaker City Paper Company, R. S. Reed; Satterthwaite-Cobaugh Company, H. Satterthwaite; Schlicter Jute Cordage Company, Irvin H. Hamilton; Schuylkill Paper Company, Frederic S. Balch; Schwartz & Company, Samuel Schwartz, A. B. Sherrill; J. L. N. Smythe Company, Stanleigh C. Brower; Stark Paper & Twine Company, A. Clarence Steinberger; Terminal Paper Company, Cecil Bentley; Union Bag & Paper Company, W. H. Stark; Vortex Cup Company, John Alden; Walden, Sons & Mott, Inc., Van R. Walden; S. Walter, Inc., H. Lefkowitz; D. L. Ward Company, George W. Ward; Welsh Paper Company, W. A. Welsh; Frank W. Winne & Sons, Inc., Amos M. Coath; American Forest Products Company, J. G. Birley; Matthias Paper Corporation; E. J. Spangler Company, Mr. Ramsey; E. K. Lay Company; Seaman Paper Company, Paul K. Smith; Wolf Brothers Company; F. W. Hoffman & Company, R. F. Armstrong; Huff Paper Company, Frank T. Hufnal; National Waterproofing Company, H. B. Collins; Southern Kraft Corporation; E. E. Ketcham; Albermarle Paper Manufacturing Company; American Paper Goods Company, E. C. Buckley; C. Moore & Company, Inc., M. C. Redding; Krout & Fite Manufacturing Company, Jules Block; Sanitary Products Corporation, D. A. Wickerham; American Writing Paper Companay, F. W. Hastings; Charles Beck Company, Leon Beck; G. A. Bossler; Dill & Collins, Inc., W. R. Ingersoll; J. E. Fricke Company, W. T. Clark; Hampshire Paper Company, Constant Southworth; Hinde & Dauch Paper Company, Charles H. Wendth; Wilcox-Walter-Furlong, W. S. Wilcox; Wilder Brothers Company, C. A. Wilder; Atlantic Gummed Paper Corporation, Frederick I. Brower; Champion Coated Paper Company, Charles A. Labor, T. C. Hanna, E. Latimer, Jr.; J. P. Lewis Company, Erwin Brown; Raymond & McNutt Company, Leonard Raymond; Whiting-Patterson Company, A. E. Whiting; Shryock Brothers, Samuel S. Shryock, Jr.

The regular quarterly luncheon meeting of the Philadelphia Waste Paper Merchants' Association was held on Thursday, January 23, in Adelphia Hotel. New Constitution and By-Laws were presented and adopted. This was made necessary by reason of confusion arising from the fact that most of the old records including the Constitution, By-Laws and Minutes of the Association were destroyed in the severe fires experienced in recent years by the Penn Paper and Stock Company; these papers having been in the custody of the late Wm. J. McGarrity, president of this company and secretary of the association. Plans for the annual banquet were discussed and a committee was appointed to report at the next meeting of the association.

Bound for Florida

The following paper house executives are among the group Florida bound leaving on Friday afternoon by train: Morgan H. Thomas, president of the Garrett-Buchanan Company, accompanied by Mrs. Thomas; George W. Weaver, of the Garrett-Buchanan Company; Fred W. Hastings, of the American Writing Paper Company and C. Raymond Smith, of the Van Reed Paper Company, Reading. C. A. Labor, of the Champion Paper and Fibre Company, will join the party some time Sunday. They are going to Mount Plymouth, about twenty-five miles from Orlando, and expect to tarry there about ten days, participating in a golf tournament.

New Weyerhaeuser Mill To Start In March

Now that work has been started on the office building, the Pulp Division, Weyerhaeuser Timber Company approaches completion of its new unbleached sulphite pulp mill at Everett, Wash. When work was begun early last March, plans were laid to erect all other buildings first and then put up the office. These plans have been followed. Construction work on all other structures is finished; only the office building remains to complete the array of modern walls that have supplanted those of a former Weyerhaeuser saw mill.

The Location

The new pulp mill at Everett has been erected on property owned by Weyerhaeuser for more than thirty years. It stands on the spot where the company began making lumber on the West Coast. One section of the old saw mill has been completely rebuilt and equipped with new machinery so as to serve as a break-down plant for the new pulp mill. Here the huge logs used in West Coast pulp manufacture will be cut up lengthwise into cants, which will be conveyed to the chipping plant, one of the most recently completed buildings.

Standing next to this plant is the chip storage building, 148 feet long and 82 feet wide, where the chips will be stored in twelve huge bins thirteen feet deep. Running crosswise, these bins extend the full width of the building.

Sulphur Storage Building

Also just finished is the sulphur storage building, which stands near the acid plant and its one hundred and twelve foot towers. Two accumulator tanks are enclosed in a concrete building, forty-seven feet high, which separates the acid towers from the digester house.

In the digester house, level with the tops of the six vertical digesters, is the operating floor of the cooking plant. Above this, at the very top of the ninety foot building, is the enclosure for the conveyor belt which will bring chips from the chip storage building to drop them into the digesters when they are being charged.

The screen room, finished some months ago, has been equipped with machinery and the final touches are being made at present. This building is one hundred and forty-four feet long and one hundred feet wide.

In the machine room nearly all work has been finished. The huge machine, erected by Rice, Barton and Fales of Worcester, Mass., extends almost the entire length of the three hundred and sixty foot building. Also enclosed in the building are a broke beater and the machines for wrapping and binding the bales of pulp before they are taken to the pulp storage shed. It was in this shed that machinery was stored prior to the erection of the buildings in which it was to be installed. With all plant buildings up, the parts and materials stock of the pulp storage shed has all but disappeared.

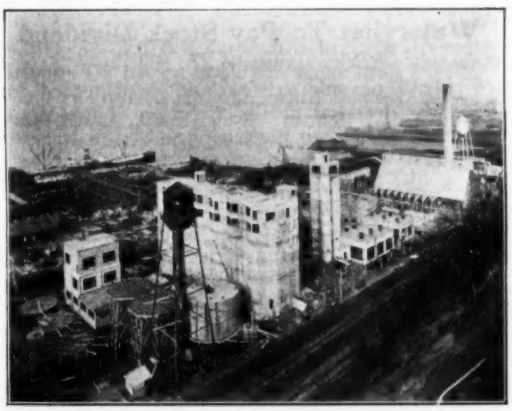


FIG. 1

Weyerhaeuser's second pulp mill nears completion. This view of the new unbleached sulphite mill shows the digester house in the foreground. Behind is the acid tower, 112 feet high; at the right is the chip storage building.

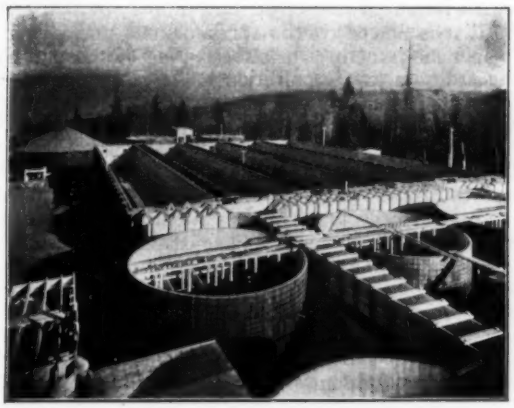


FIG. 2

A mile from the site of Weyerhaeuser's new pulp mill rests the filter plant, 240 feet above the mill floor. Each of the eight wooden filter beds can handle two million gallons of water a day.

A mile away from the mill site and two hundred and forty feet above the mill floor, rests the filter plant. Built of wood, this plant has eight filter beds, each of them capable of handling two million gallons of water a day. The Shibley Company of Seattle is handling problems of purification. The new pulp mill will be assured of a constant head of filtered mountain-stream water.

Accessible To Ocean-Going Vessels

A variety of considerations led the board of directors of the Weyerhaeuser Timber Company to select Everett as the site for its second pulp mill. The mill has been built directly on the waters of Puget Sound and is accessible to ocean-going vessels of all types. The available timber supply is very extensive. Pulpwood will arrive at the mill in huge rafts for the most part and the logs will be stored in the water near the break-down plant.

The Everett mill represents the second venture of Weyerhaeuser in the pulp-making field. In 1931 their Longview mill commenced operation; since then it has built up a reputation for producing high-grade sulphite pulp out of West Coast hemlock.

The Pulp Division obtained O. C. Schoenwerk, designer of the Longview mill, to plan and supervise the construction of the new mill at Everett. Ever since work began early in March of last year, he has maintained an office at the site so as to keep in constant touch with all steps in the erection of the mill.

The final work of tying together the plants of the new mill is in the hands of the National Tank and Pipe Company, builders of the filter plant. They are in charge of the construction of inter-plant pipe lines and tanks.

Many of the important positions at Everett will be filled by men who have been trained in Weyerhaeuser's Longview mill. They hope to begin making unbleached sulphite pulp at Everett early in March.

Fundamental Research Papers to be Presented at TAPPI Meeting

A distinguishing feature of the meetings of the Technical Association of the Pulp and Paper Industry is the stress that is placed on the fundamentals underlying pulp and paper manufacture. It is the feeling of those in charge of the program that in addition to the exchange of information relating to the more common operating practices it is necessary to consider just why processes act the way that they do. Knowing these principles it is possible to do things in a more satisfactory and economical way. Since fundamental knowledge can be obtained only as the result of research by competent investigators, the Technical Association is fortunate to have within its membership practically everyone related in the industry or related to it, who is capable of making a worthwhile contribution to manufacturing progress.

Among the papers of this nature to be presented at the annual meeting this year at the Waldorf-Astoria Hotel, New York, on February 17 to 20, are the following:

"The Paper Industry and the Business Cycle," by Louis T. Stevenson.

"The Refining Action of Discs," by D. Manson Sutherland, Jr.

"A Method for Determining the Whiteness of Paper," by Deane B. Judd.

"The Rate of Drying Paper," by A. E. Montgomery, F. W. Adams and Vincent F. Waters.

"The Characteristics of Power Requirements for Paper Machines," by W. H. Rogers.

"Factors Affecting the Determination of Water Vapor Permeability," by Allen Abrams, and G. J. Brabender.

"The Nature and Measurement of Paper Acidity," by B. L. Browning and R. W. K. Ulm.

"A Survey of Pitch Troubles in the Manufacture and Use of Sulphite Pulp," by Otto Kress and Lamar A. Moss.

"A Contribution to the Mechanism of Bleaching," by F. E. Brauns.

"Study of the Existence and Nature of Pulp Membranes," by H. F. Lewis.

"A Universal Hydrogen-Ion Indicator," by Donald F. Jackson and J. L. Parsons.

"The Chemistry of Lignin," by Walter M. Fuchs.

"The Chemical Nature of Dyestuffs in Pine Wood Pulps," by Glen M. Kuettet, M. W. Bray and C. E. Curran.

"The Effect of pH on the Rate of Chlorine Consumption in Bleaching," by W. O. Hisey and C. M. Koon.

At this meeting there will also be open meetings to deal with the consideration of raw materials specifications for such materials as lime, casein and possibly salt cake.

Public Printer Reports on Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 27, 1936—The Public Printer, in his annual message to Congress, states that during the fiscal year 1935 paper purchases for the Government Printing Office amounted to $4,705,610. Discussing the paper situation during the fiscal year, the Public Printer says:

"Due to market conditions throughout the fiscal year 1935, the Office was unable to obtain contracts for paper and material for a longer period than 6 months at a time, making it necessary to advertise for proposals on several occasions during the year.

In October, 1934, proposals for material were sent to approximately 625 firms, resulting in the placing of 56 contracts for the 6 months beginning January 1, 1935. In May, 1935, proposals were again sent to 625 prospective bidders, and bids received and scheduled, but due to the Supreme Court NRA decision it was necessary to readvertise in June, which resulted in the placing of 61 contracts for material for the 6 months beginning July 1.

In July, 1934, specifications for paper were sent to approximately 150 firms, which resulted in the placing of 28 contracts for the period of 6 months beginning October 1. Again in January, 1935, proposals were sent to the same firms, which resulted in the placing of 29 contracts for the 3 months beginning April 1. In April proposals for paper and envelopes were sent out, but due to the Supreme Court NRA decision it was necessary to readvertise in June, which resulted in the placing of 30 contracts for paper for the 6 months beginning July 1, and 9 contracts for envelopes for the period of 1 year beginning with July 1, 1935.

The Purchasing Division made a few notable savings during the year by placing orders for paper in the open market from September 10 to September 30, 1934, rather than anticipating them on the new contracts effective October 1, 1934. These open-market purchases effected a saving of $27,596.25. Further, a majority of the lots of paper on contract for the 6 months' period beginning October 1, 1934, carried two prices, the lower price being for the quarter ending December 31, 1934, and the higher price for the quarter ending March 31, 1935. Early in December a study of the needs for the quarter ending March 31 was made, with the result that on all lots of paper carrying two prices, orders were placed during December at the lower price, which effected a saving of approximately $12,000, making the total savings in the purchase of paper $39,596.25.

The report shows that in 1935 the Division of Test made 6,308 paper tests, compared with 5,460 tests made during 1934.

The report states also that few changes in the specifications for paper were made during the year. Rejections, however, amounted to 4,187,517 pounds for unsatisfactory general appearance or for some other failure to comply with specifications.

Of the 85,672,000 envelopes received during the year, 1,106,878 were rejected for noncompliance with specifications, the principal failure being a deficiency in folding endurance. For this one fault 987,415 were rejected.

Several new types of paper-testing instruments have been investigated to ascertain their practicality. Among these are an electrochemical size tester, several for smoothness and porosity, and various stiffness testers.

Watervliet To Pay Stock Dividend

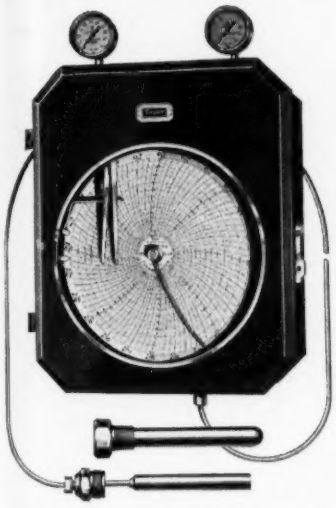
KALAMAZOO, Mich., January 27, 1936—A 25 per cent stock dividend, payable to stockholders of record January 20, 1936, was declared by the directors of the Watervliet Paper Company in their meeting held at the Park-American hotel last week, following the stockholders balloting. This stock distribution will bring the capital structure of the company to $1,600,000.

Officers reported that last year's business was of a most satisfactory volume, showing a marked increase over 1934, and that prospects for 1936 are decidedly promising.

All directors and officers were re-elected. Directors are Lou Anderson, Battle Creek; James B. Balch, George K. Ferguson and Chester Monroe, Watervliet; C. B. Hays, R. A. LeRoy, John Pyl, August B. Scheid, and Fred Scheid. Officers are George K. Ferguson, president; C. B. Hays, vice-president; John Pyl, secretary, and A. B. Scheid, treasurer. J. B. Balch was elected chairman of the executive committee, with C. B. Hays and Fred Scheid the other members.

Taylor "Thermospeed"

A separable well is required on many temperature measurement and control applications to protect the temperature-sensitive bulb from corrosion or erosion, to give it adequate support, or to permit the removal of the bulb at any time without interrupting the processing.



The extra thickness of metal and the inevitable dead air space between the well and bulb have always caused a substantial delay or lag in transmitting a change in temperature to the bulb. On applications having small time lags and heat capacities, and where temperatures fluctuate rapidly, this sluggishness of response greatly affects the performance of the instrument.

After months of intensive research on this problem, the Taylor Instrument Companies now claim to have perfected a separable well tube system, known as the "Thermospeed" having a speed response closely approaching that of their extremely fast bare bulb tube systems. Laboratory and field tests indicate that the response due to this new construction is approximately six times faster than the average separable well tube system now in service, and almost twice as fast as separable well thermocouples.

The manufacturer looks upon the "Thermospeed" construction as the most important advancement in tube system design in recent years. It gives speed where it is vitally needed. It means that a dial or recording thermometer so equipped will be extremely accurate in indicating every temperature variation. It assures closer regulation from Taylor Controllers because the corrective action of the controller occurs at the slightest tendency of a departure from the control point. Complete details may be obtained by writing to the Taylor Instrument Companies, Rochester, New York.

Cuts Rejects with Purolator Water Filter

Rejections of finished cardboard because of spots and specks, always a major tax upon paper mill profits, have been almost eliminated by one of the biggest of the paper companies, which now cleanses, through a Purolator filter, the water supplied to the liner beater vat. Substantial savings are reported by the company from reduction of wastage of high-cost raw material, as well as from curtailed allowances for rejects.

Both these forms of saving are of particular importance in the cardboard industry, where practically each order calls for special production to meet specifications as to quality, characteristics, size and color. Consequently there is small salvaging of rejects. Such cardboard is commonly thrown back into the beater vats to be worked over.

There are eight such vats in the company's mill on the east bank of a New Jersey river. There cardboard is made in eight layers. Each layer is mixed and prepared in its own vat. The main body of the cardboard is prepared in seven of these vats and is manufactured from waste paper stock. Only sulphite stock, imported from Sweden, is permitted in the eighth vat. This stock is the pure wood pulp ground from Swedish spruce and fir trees and is used to supply the finished surface to the cardboard. Its cost per ton, delivered at the mill, is approximately 50 per cent more than the company's price per ton for its finished product. This sulphite stock cannot be separated from rejects and so must be thrown, with the rest, into the waste paper stock vats for re-working.

The manufacturing process at the New Jersey mill is similar to that in other paper mills, approximately 2 per cent of stock and 98 per cent of water being beaten into pulp in the eight vats, passed on to agitators and from there to the felt roll, which, passing between heavy rollers and over other steam-heated rolls, permits the pulp to be pressed and dried into the finished product.

Water for the process is taken from the river which, though a tidal stream, soon showed itself unable to dispose of the contamination returned to it from the beaters. This, consisting of such material as paper clips, pins, bits of rubber elastic, pieces of tar roofing paper, wire and burlap from the waste paper bales, was drawn back into the mills water supply. Much of this was again separated out of the pulp in the beater vats, and what remained among the pulp used for the main body of the cardboard did no damage. That which got into the sulphite vat presently began to show up in the surface of the finished product as spots and specks. Various methods of straining were tried to remove this prime cause of rejections, and at last engineers of Motor Improvements, Inc., pioneer filter manufacturers for automotive motors and various industrial purposes, designed a special Purolator through which all water reaching the sulphite tank now passes.

The filter is of the usual Purolator metal-edge type. The filtering element is made of stainless steel and is 6 inches in diameter by 19½ inches in length, with a surface area of 374.166 square inches and a slot area of 60.45 inches with openings of .005 of an inch. Cleaning knives are attached against which the element may be manually rotated.

Since the installation of the filter, rejections because of spots and specks have been practically eliminated.

Adjustable Universal Type Oilit

The National Industrial Products Corporation of Wilkinsburg, Pa., with general sales offices in Cleveland, Ohio, announces the development of an Adjustable Universal Type Oilit, as an addition to its present line of Vacuum Type Constant Level Oilers.

The "AU" Type Oilet, due to its universal adjustable feature, makes it possible for industry to stock one type of lubricator for application to any type of equipment needing this form of lubrication, and allows adjustment of oil level in the bearings after the installation has been completed.

The principle of constant level lubrication, combined with the visible oil supply, has done much to reduce maintenance costs on electrical equipment of all types. This new development simplifies the matter of application to the extent that it practically removes all the objections formerly brought up by the electrical men in the mills, i. e., the many different types which were required prior to the bringing out of this new "AU" Type Oilit, are now superseded by it.

Charles F. Hubbs & Co. Elect Officers

Announcement has just been made of the election of the new officers of Charles F. Hubbs & Co., paper merchants, of 383-389 Lafayette street, New York City, brought about by the death on December 21, 1935, of the president, Charles F. Hubbs, who inherited a paper business about 50 years ago from his father, who established it in 1855.

Mr. Hubbs was a prominent figure in the wrapping paper industry, having first introduced Kraft paper into this country in 1904. Mr. Hubbs developed his business into one of the largest and most outstanding in the country, and was also the president of a number of houses in other cities, and identified with many paper interests.

The newly elected officers of Charles F. Hubbs & Co., have been closely associated with Mr. Hubbs over a long period of years, and are qualified by training and experience to ably carry on the traditions of this prominent concern.

The new president is Charles P. White, who has been associated with the business for the past thirty years, serving as vice-president since 1917. Mr. White is a well-known resident of Fairfield County, Conn., where he has been prominent in civic affairs and constructively active in affairs pertaining to the Y. M. C. A., and other movements having to do with young people.

The first vice-president is Richard C. Kettles, Jr., who has been with the company over twenty-one years, a director since 1917, and for a number of years vice-president in charge of sales.

Harry W. Doremus is the second vice-president and secretary, having served as the latter for many years, and being with the organization over forty years.

The treasurer is Lowell J. Whiteford, a well-known man in the industry, and associated with Charles F. Hubbs & Co. for over twenty-five years.

A new office has been created, that of chairman of the executive committee, to which Richard C. Kettles, Jr., has been elected.

Mr. Kettles is a prominent figure in the paper industry, now serving as president of the Paper Association of New York, an organization affiliated with the National Paper Trade Association, and as president of the Paper Council of the Metropolitan Area.

A personnel such as this reflects great foresight on Mr. Hubbs' part as to the carrying on and perpetuation of his ideas and standards in the conduct of the wrapping paper and allied businesses.

Boston Paper Market Fairly Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 27, 1936—The volume of paper moving in the wholesale market here averaged fair during the week. Some fine paper dealers noted a very good business, even rather better in one or two instances, while others declared that they had experienced a marked letup since the first of the year. Reasons brought forward which may have created the decline are the uncertainty of the tax situation, the bonus or inflation, any or all of these. It is stated in the trade that business cannot go ahead until the trade knows on what basis they are. In wrapping paper, the same situation is true, at least to a certain extent. One large house notes a below-seasonal business. Reports from some of the paper mills indicate a falling off in orders. Specialty bags are reported as moving well. In box boards, business was fairly good. Shoe manufacturers are trying to hammer down the cost of boxes for their purpose, according to reports.

The paper stock market continued strong and active, with several grades advancing in price. In old papers, the price of mixed papers and old newspapers continued firm at the same levels, .22½ @ .25 and .25 @ .27½, respectively. Manila envelope cuttings rose to 1.60 @ 1.70 from 1.50 @ 1.60; No. 1 kraft to 1.10 @ 1.15 from 1.05 @ 1.10; and corrugated boxes to .35 @ .40 from .35 @ .37½. In some quarters, a range of .37½ @ .40 was quoted. A scarcity in bagging, new and old domestic rags and foreign rags was reported. Under bagging, foreign manila rope advanced to 2.25 @ 2.30 from 2.00 @ 2.25; domestic manila rope to 2.25 @ 2.50 from 2.10 @ 2.10 @ 2.25; paper mill bagging to 1.75 @ 2.00 from 1.50 @ 1.75 and bagging No. 2 to 1.25 @ 1.50 from 1.00 @ 1.25. In new domestic rags, the value of silesias No. 1 went up to .04¾ @ .05 from .04½, and blue overalls to 5.50 @ 6.00 from 5.25 @ 5.50. Old domestic rags and foreign rags continued firm, with values unchanged.

Color Lectures to be Presented

At last year's annual meeting of the Technical Association of the Pulp and Paper Industry an outstanding feature were the three lectures on color given by members of the staff of the International Printing Ink Corporation and the Massachusetts Institute of Technology.

Because of their popularity, arrangements have been made to have the same lecturers again present their subjects during the 1936 annual meeting of TAPPI. On Thursday evening, February 20th, at 8:00 P. M. these lectures will be given in the Astor Gallery of the Waldorf-Astoria Hotel, New York, under the sponsorship of the Inter-Society Color Council, of which TAPPI is a member.

The subjects to be presented are:

"The Chemistry of Color," by A. E. Gessler; "Color as Light," by A. F. Hardy; "Color in Use," by George Wedp.

Since there will be a number of technical organizations represented at this meeting the lectures will be quite different from those given heretofore, and much of the elementary material will be omitted. For those who heard the previous lectures it will be worth while to hear the new ones with this greater stress on scientific fundamentals.

Admission will be by ticket only. These may be obtained on request sent to R. G. Macdonald, Secretary of TAPPI, 122 East 42nd street, New York. Because of the limited capacity of the meeting room and the demand by other organizations for tickets, requests should be sent in at once.

Wholesale Paper Trade Shows Increase

WASHINGTON, D. C., January 27, 1936—During 1935 wholesale trade activity was at the highest level since 1931, according to estimates of the Department of Commerce.

According to the department's estimate, wholesale trade of paper and its products in 1935 amounted to $415,000,000, compared with $382,000,000 in 1934 and $333,000,000 in 1933. Included under paper and its products are paper and its products, general line and specialty line, also wall paper and stationery.

Parker-Young Settlement

CONCORD, N. H., January 27, 1936—The Parker-Young Company of Lincoln, N. H., and representatives of the bondholders' protective committee have agreed upon settlement figures and have presented them to Judge Morris. The company is prepared to pay 37½ cents on the dollar, which will mean a loss of about $1,000,000 to bondholders. The proposal will be submitted at once to bondholders.

"CENTRIFINED" MEANS *Cleanest*

CENTRIFINED paper is paper that has been put through Bird Centrifiners. But today such a large part of the paper that must be as clean as it can be made is *centrifined* paper that the term is commonly used throughout the trade to describe paper of the highest quality and cleanness. Modern Bird Centrifining represents the last word in efficiency and economy of dirt removal. May we talk with you about the profit significance of having all of *your* paper centrifined paper?

BIRD MACHINE COMPANY
SOUTH WALPOLE · MASSACHUSETTS

THE BIRD CENTRIFINER

YOU CAN MAKE MORE MONEY WITH NEW BIRD MACHINERY

Indianapolis Demand Expanding

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., January 27, 1936—There is considerable optimism concerning late winter business and the volume is slowly expanding after the inventory period. Local jobbers are expecting little effect from the AAA ruling. Manufacturers of paper bags and other commodities going to the milling trade believe there will be no effect, or if any, the effect will be beneficial rather than otherwise. Jobbers of newsprint going to the agricultural communities have seen no indications of less lineage, nor are they expecting any.

The fine paper trade here has not rebounded quite as it should, according to local jobbers. However, there is a strong undertone and inquiries are numerous. In face of the condition prices are being held steady. Books and covers and all bonds and ledgers are moving somewhat slowly and a real improvement is not expected now before spring. However, volume is fair, as a whole. Printers are finishing up their catalogue work, and no really large direct mail advertising campaigns are being contemplated until the end of next month, at least.

Newsprint shows a slight improvement over the holiday period. Sales are not entirely satisfactory, but they are holding up well during what usually is a rather dull period. Prices are holding to customery levels. Bags are in good demand. The same may be said of tissues.

Box factories gradually are expanding their production. Inventory found them with depleted warehouse stocks and production is to be maintained apace with orders until after March 1, when warehouse stocks likely will be built up to sizeable proportions.

Paper stock men report a fair mill demand. Conditions are not ideal, but orders are a trifle more plentiful. Good rag cuttings are most popular, with common rags and papers sluggish.

May Erect Pulp Mill on Vancouver Island

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., January 25, 1936—Backed by a three million pounds sterling capitalized English company, Dal. Thomas, of Vancouver, and his son, D. M. Thomas, are now seeking a water supply of 15,000,000 gallons daily to permit erection of a rayon pulp mill and two subsidiary saw mills on Vancouver Island, preferably near Victoria, B. C. It is understood that timber stands on the Island have already been reserved.

The representatives for the present declined to divulge the name of the company they were acting for, but stated they had been investigating possibilities of erection of a rayon pulp plant in British Columbia for the past eight years, and during the last six months, being assurred of British backing, had had field engineers at work surveying possible sites. Victoria would offer the advantages of being adjacent to timber supplies, and also there was an almost unlimited supply of limestone on the Island, and in addition labor troubles which might arise on the mainland would not be likely to effect a Vancouver Island plant.

The city council is working with the representatives in seeking to overcome the water supply problem, and the possibility of raising levels of lakes in the district, or of pumping from the tributaries of the Sooke river are being investigated. No further concessions are being sought.

Famous Chemist to Address TAPPI

Announcement has just been made that Dr. Walter M. Fuchs, eminent former Austrian chemist, will be one of the principal speakers at the annual meeting of the Technical Association of the Pulp and Paper Industry at the Waldorf-Astoria Hotel, New York, February 17-20, 1936.

Dr. Fuchs is at present associate research professor in the School of Mineral Industries, Pennsylvania State College, with which he has but recently become associated. He is a graduate of the University of Vienna.

From 1919 to 1926 he was provatdozent at the Technische Hochschule, Brunn. From 1926 to 1931 he was head of the department at the Kaiser Wilhelm Institute for Coal Research, Mulheim, Germany. From 1931 to 1933 professor of industrial chemistry, University of Aachen, and from 1933 to 1935 research professor at Rutgers College, New Brunswick, N. J. Dr. Fuchs has presented more than 100 technical papers and written five books, one being "Die Chemie des Lignins," Berlin, 1926, and "Die Chemie der Kohle," Berlin, 1931. He is an authority on coal and lignin and is, by experience, almost the only eminent authority on the combination of these two important related subjects.

The Technical Association is indeed fortunate to be able to present Dr. Fuchs at its annual meeting and to have him discuss the practical aspects of lignin chemistry.

Sutherland Paper Co. Makes Good Report

The Sutherland Paper Company, Kalamazoo, Mich., reports for 1935 as follows: Net income, $618,369 after all charges, reserves and Federal taxes, equal to $2.15 a share on the 287,000 capital shares, compared with $440,733 or $1.54 a share in 1934. As of December 31 last, current assets were $1,882,052 and current liabilities $302,026, as compared with $1,707,606 and $317,736, respectively, on December 31, 1934.

At a recent meeting of the company all officers and directors were reelected with the exception of Earl H. Shepherd. Edward A. McQuade, secretary-treasurer of the Central National Corporation of New York, was elected to fill Mr. Shepherd's place on the board of directors.

Daniels Mfg. Co. Reelects Officers

RHINELANDER, Wis., January 27, 1936.—The Daniels Manufacturing Company at its annual meeting held here January 20 reelected all the officers as follows: E. S. Daniels, president; J. S. Daniels, vice president and treasurer and Ernest Draheim, secretary. The officers reported that good business had been enjoyed during the past year and the prospects for 1936 were even better.

Two new dispensing napkins, Snacks and Cadets, were added recently to the line already made by the company. A new line of cocktail napkins, under the name "Aperitif," is now in the hands of the company's distributors, as is the 1936 package assortment.

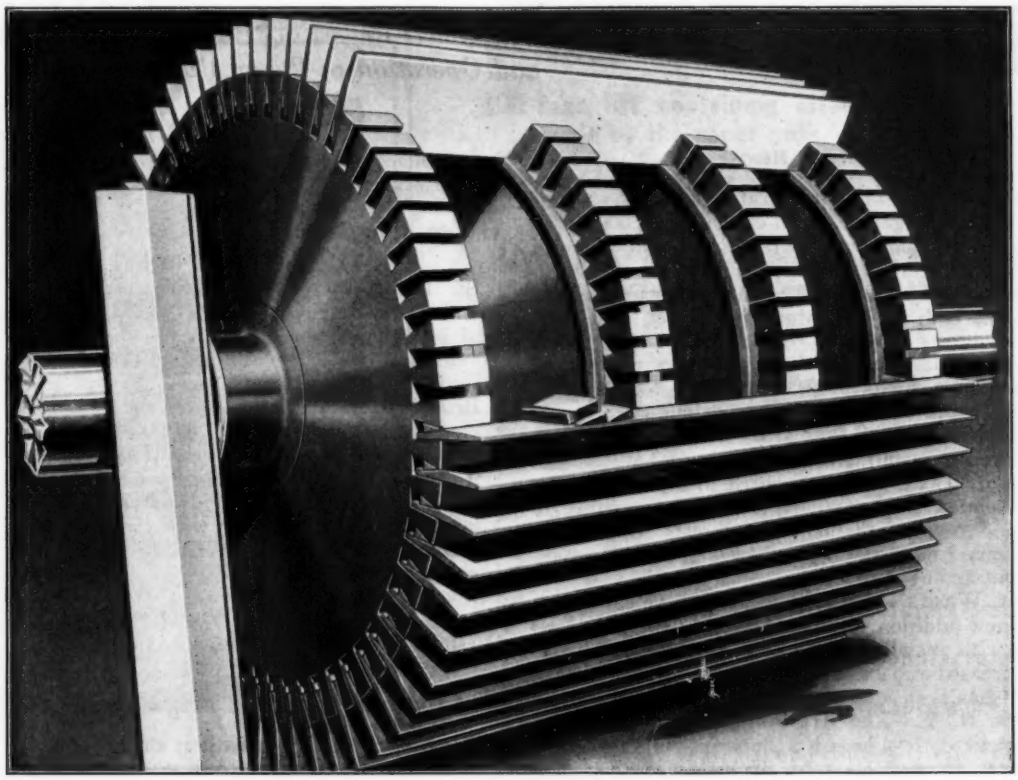
Butterworth Company Elects Officers

At the regular stockholders meeting of H. W. Butterworth & Sons Company, Philadelphia, held on Monday January 20, Harry W. Butterworth Jr., was elected president of the company to succeed his uncle, the late Albert W. Butterworth, who died December 18.

The Board of Directors also elected Harry W. Butterworth Sr., head of the board; J. Ebert Butterworth, executive vice president and treasurer; Henry W. Butterworth, vice president; DeHaven Butterworth, vice president; and James Butterworth 2nd, secretary and assistant treasurer.

All the above are directors of the company; the directorate also includes J. Warner Butterworth.

again we present—



the Dilts Keyed Bandless Beater Roll

Most rugged and practical roll obtainable—steel spindle—steel heads—No bands to break—Can be refilled without removing from tub.

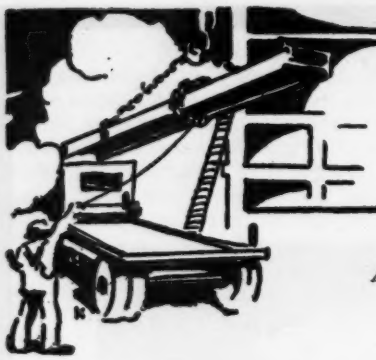
Why not do as others and *standardize* your beater rolls. We can build new rolls to fit any make of beater or we can rebuild your present rolls to keyed bandless type.

Remember—The roll is the heart of your beater.

—Dilts—

MACHINE WORKS Inc. FULTON, N.Y.

"your paper is made in your Beaters"



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

New York, N. Y.—The Stylecraft Paper Box Company, Inc., recently organized with capital of $5,000, plans operation of local plant for manufacture of a new line of paper boxes and containers. Incorporators and representatives of new company include Herman Becker and Samuel S. Rubenstein, both of 185 Montague street, Brooklyn, N. Y.

Easton, Pa.—Plans are under way for a merger of the Vortex Cup Company, 421 North Western avenue, Chicago, Ill., manufacturer of paper drinking cups and similar containers, and the Individual Drinking Cup Company, Inc., Easton, manufacturer of kindred products, sold under name of "Dixie." It is proposed to organize a new corporation under name of Dixie-Vortex Company, to take over and consolidate the two interests. Both plans will be continued in operation as heretofore, and expansion in output arranged.

Cathlamet, Wash.—The Willamette Paper Company is planning new addition to plant, primarily for pulpwood production, with installation of new equipment for this purpose. Increased capacity will be carried out. No estimate of cost has been announced.

New York, N. Y.—The Art Folding Box Company, recently organized, has leased a floor in building at 97 Bleecker street, for new plant for manufacture of folding paper boxes and containers of various kinds. Operations are scheduled to begin soon.

Cleveland, Ohio—The Ohio Envelope Manufacturing Company, recently organized with capital of 250 shares of stock, no par value, plans operation of plant for manufacture of commercial envelopes and kindred paper products. New company is represented by James B. Dolphin, Union Trust Building, Cleveland.

Dayton, Ohio—The Loose-Wiles Biscuit Company, Commerce Building, Kansas City, Mo., is pushing work on new branch plant on Concord street, near Riegel street, Dayton, to include large division for production of paper cartons and containers for company products, recently noted in these columns. Entire structure will be 109 x 650 feet, one-story type, and will represent an investment of close to $160,000, with equipment. The container division will be equipped with modern machinery for large output. As previously reported, general contract is being carried out by the H. K. Ferguson Company, Hanna Building, Cleveland, Ohio, and different sub-contracts are being awarded.

Vancouver, B. C.—Preliminary plans are being prepared by J. P. Meehan & Co., 207 West Hastings street, Vancouver, architects and engineers, for a new pulp and paper mill, to be constructed in this vicinity. Company name is temporarily withheld. New plant will occupy a large tract of land and will consist of several units for sulphate pulp and finished paper production. A power house, machine shop and other mechanical units will be built. Entire project is reported to cost close to $1,000,000, including equipment. It is understood that project is scheduled to mature soon.

New Companies

St. Louis, Mo.—The Midwest Tag Company has been organized with capital of $10,000, to manufacture and deal in paperboard tags and kindred paper goods. Incorporators of new company include George A. Brooks and Allen P. Folk, both of St. Louis.

Brooklyn, N. Y.—The Paco Process Corporation has been chartered with capital of $4,000 and 30 shares of common stock, no par value, to manufacture and deal in special paper goods. The incorporators include Samuel Rudykoff, 418 Newport avenue, and Isidore Edinger, 165 Rockaway Parkway, both Brooklyn.

Boston, Mass.—M. T. Bird & Company, Inc., has been incorporated with capital of 100 shares of stock, no par value, to deal in writing papers, etc. Philip H. Bird is president, and Mellen T. Bird, 376 Highland street, West Newton, Mass., treasurer and representative.

Cincinnati Rubber Mfg. Co. To Expand

A contract for an extension of its building used for covering paper mill press rolls, as well as other types of rolls and for tank linings, has been let by the Cincinnati Rubber Manufacturing Company, of Cincinnati, Ohio, to the Austin Company, of Cleveland. The new extension is to be 80 feet in length and 50 feet in width, complete with craneway. The extension, according to J. F. Joseph, president of the Cincinnati Rubber Manufacturing Company, is necessary to take care of expanding business.

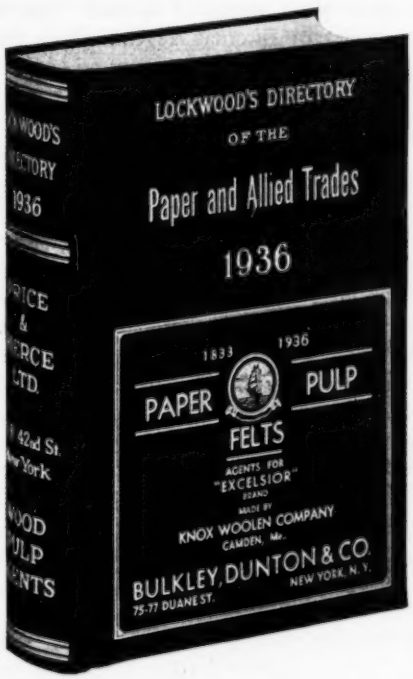
Nonotuck Div. Gets Safety Certificate

HOLYOKE, Mass., January 21, 1936—The Nonotuck Division of the American Writing Paper Company, Inc., has received a safety certificate in recognition of its having operated 180,000 hours without an accident in the plant. The mill's safety committee has been enrolled in the safety club organized by insurance interests working for industrial safety. Insurance rates will be reduced due to the record.

Delaware Valley TAPPI To Meet

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry will meet at the Engineers Club, Philadelphia, Pa., on Friday evening, January 31st, at 6:30 P. M. The speaker will be James F. Downey, Engineer of the Charles E. Bedeaux Company, New York, who will talk on "The Technique of Modern Material Handling Measurements."

The 1936 Edition Contains



40 Page list containing 2400 names of Mill Officials

190 Pages of Mill Data Complete on 760 Mills

100 Page list containing information on products made by the paper mills

150 Page list of Paper Specialties and where obtainable

10 Page list of Glazed and Coated Paper and Board Manufacturers with outline of their equipment

50 Page list of Paper Merchants

20 Page list of Rags and Paper Stock Dealers

40 Pages of data on Rags and Paper Stock Consumed by the Mills

30 Page list of Box Manufacturers

5 Page list of Bag Manufacturers

10 Page list of Envelope Manufacturers

10 Page list of Tablet and Tag Manufacturers

2 Page list of Papeterie Manufacturers

2 Page list of Wall Paper Printers

10 Page list of Mill Supply Houses

List of Pulp Testing Chemists

240 Pages of Watermarks and Brands

25 Page list of Trade Associations and Their Headquarters

200 Pages listing Materials and Equipment used in making paper and pulp

35 Pages giving addresses of Manufacturers of Materials and Equipment for Making Paper

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Vol. CII New York, January 30, 1936 No. 5

COMING EVENTS IN THE PAPER INDUSTRY

AMERICAN PAPER AND PULP ASSOCIATION, Fifty-Eighth Annual Convention and Meeting, Waldorf-Astoria Hotel, New York, February 17-21.

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Convention, Waldorf-Astoria Hotel, New York, February 17-20. Annual Luncheon, Waldorf-Astoria Hotel, Thursday, February 20.

SALESMEN'S ASSOCIATION OF THE PAPER INDUSTRY, Annual Meeting and Luncheon, Waldorf-Astoria Hotel, New York, Tuesday, February 18.

NEW YORK ASSOCIATION OF DEALERS IN PAPER MILL SUPPLIES, Annual Banquet, Hotel Commodore, New York, February 19.

NATIONAL PAPER TRADE ASSOCIATION OF THE UNITED STATES, Convention, Waldorf-Astoria, New York, February 17-21.

CANADIAN PULP AND PAPER ASSOCIATION AND SECTIONS, Annual Meeting, Montreal, January 29-31.

TECHNICAL SECTION, CANADIAN PULP AND PAPER ASSOCIATION, Annual Meeting, Montreal, January 29-31.

CHANGE IN GOVERNMENT'S TAX POLICY NEEDED TO REDUCE BURDEN

Continued increases in taxation will confront business in this country if the government's policy is not radically changed or unless some of the recent legislation is declared unconstitutional, the Guaranty Trust Company of New York declares in the current issue of its survey, discussing taxes and business recovery.

State and local taxation, as well as Federal, has shown a rising trend for many years, the bank says, but it has been accelerated in the depression by the pressing need for relief. The only reason the increase in government spending has not been felt more severely, it remarks, is that a large part has been financed by borrowing, which merely means a postponement of the necessary taxation. The gross public debt of Federal, State and local governments is estimated at $50,000,000,000, which is equal to about one year's national income at present levels, and to one-fifth or one-sixth of the national wealth.

Remarking that a tax burden is measured, in so far as it can be determined mathematically, by the ratio of taxes to income, the Survey says:

"This ratio of taxes to income has risen since the beginning of the depression, not because of an increase in tax payments but because of a sharp decrease in income. The peak of actual tax payments, according to the estimates of the National Industrial Conference Board, was reached in 1930 at $10,300,000,000. Between 1930 and 1932 the estimated national income decreased by more than 40 per cent, with the result that the ratio of taxes to income rose very sharply. For the period from 1932 to 1934 the ratio averaged about 20 per cent, as against 10 to 12 per cent in the years prior to the depression.

"If the tax burden on business alone could be measured, it would undoubtedly show a much greater increase, since business earnings were more severely affected by the depression than most other classes of income. The reports of the Commissioner of Internal Revenue show that the ratio of taxes to net profits before taxes of all corporations reporting for Federal income-tax purposes averaged about 27 per cent in the period from 1926 to 1929. In 1930 this ratio rose to 50 per cent and in 1931 to about 202 per cent, while the ratio for 1932 could not be computed because the net total of profits was a negative quantity. The ratio for 1933, the latest year for which figures are available, was 201 per cent.

"While this ratio is not comparable with that between total taxes and national income, the huge rate at which it rose during the depression gives a striking picture of the increasing tax burden that has been borne by business concerns in the last few years. A ratio of 200 per cent for a given year signifies that the taxes paid by corporations in that year wiped out their entire net profit before taxes and created in its place a deficit of an equal amount.

"If it could be assumed that the tax burden on business would decline to something approximating the pre-depression average as recovery progresses, the figures for the last few years would afford ground for less concern. Unfortunately no such assumption can be made. The depression years have witnessed further extensions of governmental activity into new fields, with rising tax rates and with a rapid growth of public debts. Both the new activities and the larger debts will require greater tax revenues than have been needed in the past. This would be true even if the extension of public activities and the increase of debts had been halted. With both processes still going on and no definite end in sight, it is impossible even to attempt a prediction of the proportion of income that may be absorbed by governments in the future.

"What effect high taxes will have on business recovery and on the productivity of our industrial system over a period of years is likewise beyond prediction. It is frequently pointed out that, from the point of view of a national economy as a whole taxes do not represent a cost in the sense of a deduction from income, but a redistribution of income. This, of course, is true as long as the governmental activities supported by the taxes are as useful and as efficiently conducted as the private industrial operations which they displace. The funds collected by governments in the form of taxes are disbursed to business enterprises in payment for supplies or are paid out in salaries, relief benefits, pensions, and the like, and spent by the recipients. In either case, they represent a diversion, but not necessarily a loss, of income from the national point of view."

British American Announces Capital

VANCOUVER, B. C., January 25, 1936—A total capitalization of $9,400,000 has been announced for the British-American Pulp and Paper Mills, Limited, which some time ago took over the Mutual Pulp and Paper Company, and which proposes to erect a new pulp mill at Prince Rupert, B. C. Fuller details of the organization and working of the organization were made public recently. The capitalization is made up of $900,000 common stock; $2,500,000 preferred stock, and $6,000,000 first mortgage 5 per cent bonds.

The president and five directors of the company are San Francisco business men, while the managing director and chairman of the board, Frank L. Buckley, is from Vancouver, B. C. J. O. Stewart of the Pacific Coast and Joint Stock Land Bank is president. Edward A. Thompson, David D. Bohannon, Harry E. Saunders, Gordon Lantz and Alfred Hargreaves are the directors.

The company, of which Mr. Buckley is managing director, holds over four billion feet of pulp timber on the Queen Charlotte Islands and along the Skeena and Naas valleys of British Columbia. To utilize these vast stands of timber, a mill will be erected to manufacture high-grade bleached sulphite pulp.

Directors expect a ready sale of the pulp in the rayon mills of Eastern United States and the British Isles. When conditions warrant, a second unit will be added.

Construction of the mill will begin within sixty days from the date of organization, and operation is expected to commence within fifteen months after building gets under way. It will be erected on the G.T.P. drydock site at Prince Rupert, thus giving the advantage of tidewater as well as rail facilities.

To Be Director of Technical Service

Dr. Norman A. Shepard has been appointed director of Technical Service for the American Cyanamid Company, the American Cyanamid and Chemical Corporation and other companies in the Cyanamid group where cooperation in this field is required. He will be responsible for directing the technical service laboratories located in Stamford, Conn., the expansion of the sales service laboratories to meet present and increasing need and the coordination of the technical and sales service work in all of the several divisions of the above-named companies.

Dr. Shepard is a graduate of Yale University (PH.D. 1913), was assistant Professor of Chemistry at Yale University from 1917 to 1919 and has been director of the research laboratories of the Firestone Tire and Rubber Company from 1919 to date. He will begin his work with the Cyanamid group on or about February 15 and will have his headquarters at the Stamford Laboratory.

Wood Pulp Imports Into Argentina

WASHINGTON, D. C., January 27, 1936—Imports of chemical wood pulp into Argentina during November were in the neighborhood of 250 short tons, all of which came from Sweden, according to Assistant Trade Commissioner DuWayne G. Clark at Buenos Aires. October imports of this product totaled only 32 tons, while arrivals during November, 1934, reached a total of 1,190 tons. Imports of mechanical pulp during November aggregated 1,110 tons, of which Norway supplied 1,000 tons; Sweden 100 tons, and the United States only 10 tons. October arrivals of wood pulp totaled 2,178 tons, and those for November, 1934, 663 tons.

Production Ratio Report

(These statistics are based upon paper production reports to the American Paper and Pulp Association.)

COMPARATIVE MONTHLY SUMMARIES

1935	Total Production Ratio	1934	Total Production Ratio
January	65.8%	January	.....
February	70.0%	February	.....
March	70.5%	March	.....
April	70.0%	April	.....
May	69.4%	May	.....
June	72.3%	June	.....
July (b)	67.8%	July	.....
August	70.9%	August	.....
September (c)	75.0%	September (c)	59.4%
October	75.6%	October	64.7%
November	75.3%	November	61.7%
December (a)	74.3%	December (a)	62.1%

COMPARATIVE WEEKLY SUMMARIES

Current Weeks, 1936		Corresponding Weeks, 1935	
*January 4	72.6%	January 5	60.2%
*January 11	76.0%	January 12	65.1%
*January 18	76.7%	January 19	67.0%

The following statistics show the number of mills reporting by ratio groups:

Ratio Limits	Number of Mills Reporting, Current Weeks—January 4 1936	January 11 1936	January 18 1936
0% to 50%	140	86	56
51% to 100%	198	250	192
Total Mills Reporting	338	336	248

* Subject to revision until all reports are received.
These data exclude (a)—Christmas Day, (b)—Fourth of July, (c)—Labor Day.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, percentages of operation, based on "Inch-Hours," were as follows:

1934		1935		1935		1935	
September	62%	January	61%	May	61%	September	69%
October	63%	February	67%	June	65%	October	76%
November	56%	March	67%	July	59%	November	70%
December (a)	56%	April	61%	August	65%		
Week ending December 7, 1935	67%			Week ending January 4, 1936	51%		
Week ending December 14, 1935	66%			Week ending January 11, 1936	65%		
Week ending December 21, 1935	70%			Week ending January 18, 1936	61%		
Week ending December 28, 1935	37%						

Miami Valley Shippers Elect Officers

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, January 27, 1936—Results of the annual election of the Miami Valley Shippers' Association, which is composed of more than a score of paper mill firms, combined for the purpose of shipping less than carload lots, have been announced at Middletown.

R. V. Boswell, of the Maxwell Paper Company, Franklin, was elected president; M. H. Stetson, of the Harding Jones Paper Company of Excello, vice-president; W. W. Winship, of the Oxford-Miami Paper Company, West Carrollton, treasurer, and G. R. Braun, permanent secretary. The latter was re-elected to the post he has filled capably for some time. He is in charge of headquarters, which have been established in Middletown.

The board of trustees includes J. J. Hollowell of the Wrenn Paper Company, Middletown; D. J. Monarch, of the Miami Coated Paper Company, Franklin; C. J. Nicol, of the Sorg Paper Company, Middletown, and V. H. Larsen, of the Crystal Tissue Company, of Amanda.

Officials report that an increase of 77.7 per cent in pooled tonnage business was recorded during 1935, and that prospects for an even greater volume of business were bright at this time.

Franklin Paper Co. Insures Employees

HOLYOKE, Mass., January 14—The Franklin Paper Company has taken out a group insurance policy for its employees, of the part contributory type, and covering life, health and accident insurance, with the Travelers Insurance Company of Hartford, Conn.

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FOR THE
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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

United States Patents On Paper Making

Fourth Quarter, 1935

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI

The following list of patents has been compiled from the current numbers of the Official Gazette of the United States Patent Office. Since only one claim, in general, is published in the Official Gazette, it is not claimed that this list is complete.

Copies of any of the following patents may be obtained from the Patent Office, Washington, D. C., by sending ten cents ($0.10) for each patent desired. At least the number of the patent, the date and the patentee should be given. Personal checks and stamps are not accepted in payment for patents.

October 1, 1935

2,015,877. Revolving paper cutter. Victor T. Thompson, assignor to Harold E. Thompson, Camas, Washington. Filed Dec. 3, 1934. 6 claims. (Cl. 164-70).

2,015,936. Log barker. Albert Hokonson, Coghlan, British Columbia, Canada. Filed March 2, 1933. 5 claims. (Cl. 144-208).

2,016,039. Thermal insulation and method of making the same. Elmer S. Hurrell, assignor to Johns-Manville Corporation, New York, N. Y. Filed April 7, 1932. 4 claims. (Cl. 154-28). A combination of felted organic fibers and 85 per cent magnesia.

2,016,069. Log barker or peeler. Rex Otis Britton, Port Angeles, Wash. Filed April 23, 1934. 3 claims. (Cl. 144-209).

2,016,085. Paper coating process. Charles E. Fawkes and Malcolm MacKenzie, assignors to Container Corporation of America, Chicago, Ill. Filed Nov. 30, 1934. 9 claims. (Cl. 91-68). Method of applying a lacquer by means of a roll so as to overcome the tendency of the lacquer to form distinctive ridges or flow lines on the sheet as it is being transferred.

2,016,138. Package and method of making same. Lewis M. Dixon, assignor to Columbia Ribbon and Carbon Manufacturing Company, Inc., Glen Cove, N. Y. Filed Aug. 13, 1932. 6 claims. (Cl. 93-2).

October 8, 1935

2,016,273. Built-up composite cellular structure. Harry N. Atwood, South Lyndeboro, N. H. Filed Sept. 14, 1934. 10 claims. (Cl. 154-2).

2,016,328. Process of producing sulphite cellulose. Gustaf Haglund, assignor to Patentaktiebolaget Grönda1-Ramén, Stockholm, Sweden. Filed Feb. 1, 1934. 10 claims. (Cl. 92-11). Material is subjected successively to the action of a solution containing an alkali metal compound of sulphurous acid and a solution comprising calcium bisulphite and excess sulphur dioxide.

2,016,429. Roofing and method of producing. Harold P. Hayden, assignor to The Barber Asphalt Company, Philadelphia, Pa. Filed Aug. 19, 1932. 15 claims. (Cl. 154-2). A metal foil is applied to a surface of a base and the base flexed to effect a wrinkling of the foil.

2,016,447. Process of making conduits. Carlton J. Katze-Miller, assignor to Line Material Company, South Milwaukee, Wis. Filed Jan. 14, 1933. 4 claims. (Cl. 92-21). Leather scrap and wood fibers are formed and waterproofed.

2,016,462. Box-making system. John S. Stokes, assignor to Stokes and Smith Company, Philadelphia, Pa. Filed April 11, 1933. 21 claims. (Cl. 93-43).

2,016,567. Fabrication of composition fiber board. Paul R. Zinser, assignor to Woodall Industries Incorporated, Detroit, Mich. Filed March 9, 1931. 8 claims. (Cl. 41-30). Method of reproducing natural wood grain upon a thermoplastic sheet.

2,016,568. Process of forming composition fiber board. Paul R. Zinser, assignor to Woodall Industries Incorporated, Detroit, Mich. Filed May 21, 1931. 5 claims. (Cl. 18-56). Process of shaping a composition fiber board by heat and pressure.

2,016,647. Device for treating paper stock. William B. McMartin, assignor to the Noble and Wood Machine Company, Hoosick Falls, N. Y. Filed Oct. 14, 1933. 5 claims. (Cl. 259-97). A rotating shaft with blades in a chest.

2,016,657. Method of making boards. Edwin H. Streeter, assignor to Masonite Corporation, Laurel, Miss. Filed May 9, 1929. 7 claims. (Cl. 92-30). Sheets containing 50-60 per cent moisture are superimposed, heated and pressed to remove part of the moisture and unite them into a homogeneous sheet.

2,016,754. Carton and method of making the same. Edward M. Ferkit, Boston, Mass. Filed July 20, 1933. 3 claims. (Cl. 93-49).

2,017,017. Apparatus for drying molded pulp articles. Walter H. Randall, assignor to The Canal National Bank of Portland, Portland, Maine. Filed Aug. 31, 1931. 9 claims. (Cl. 34-12). A vacuum die-drying apparatus.

October 15, 1935

2,017,184. Cutting webs of paper. Kurt Riess, Adolf Knodel and Rudolph Klaus, assignors to Agfa Ansco Corporation, Binghamton, N. Y. Filed Sept. 28, 1934. 1 claim. (Cl. 164-48).

2,017,225. Method and apparatus for determining, recording and controlling the density, consistency or specific gravity of fluent materials. George S. Witham, Jr., Lincoln, N. H. Filed May 14, 1931. 23 claims. (Cl. 93-46). An element floating upon and continuously movable by flowing stock for indicating the consistency thereof.

2,017,228. Manufacture of artificial grindstones for pulp grinding. Raymond C. Benner, assignor to The Carborundum Company, Niagara Falls, N. Y. Filed July 22, 1930. 12 claims. (Cl. 51-280). Silica-lime abrasive article.

2,017,331. Art of manufacturing containers. Emery L. Walker and John W. Kieckhefer, assignors to Kieckhefer Container Company, Milwaukee, Wis. Filed Sept. 8, 1933. 7 claims. (Cl. 93-36). Blanks are formed into container form while the impregnating material is in a liquid state.

2,017,339. Re-enforced fibrous layer. Frank L. Bryant and Gustave S. Mathey, assignors to Celluform Corporation, Chicago, Ill. Filed Nov. 11, 1933. 1 claim. (Cl. 92-40). Gauze sheet, absorbent distended fibrous material attached to one side and moisture resisting distended fibrous material attached to the opposite side.

2,017,376. Determination of the percentage of water in wood, textiles and other substances. Paul Rother and George Grau, Chemnitz, Germany. Filed June 7, 1933. 2 claims. (Cl. 73-51).

2,017,449. Separating sheet material. Herbert L. Thompson, assignor to Nashua River Paper Company, East Pepperell, Mass. Filed May 3, 1933. 2 claims. (Cl. 91-68). A flexible, fibrous sheet coated with a soln. containing approximately 140 parts by weight of sodium silicate, 15 parts glycerol and a little wax emulsion.

2,017,583. Machine for folding blank cartons. Frank J. Burrow, assignor of one-half to Ernest I. Stephensen, Toledo, Ohio. Filed Sept. 14, 1933. 6 claims. (Cl. 93-49).

2,017,587. Masonry-faced wall board and process of producing the same. Walter R. Dennis, Minneapolis, Minn. Filed June 29, 1931. 6 claims. (Cl. 18-59).

2,017,608. Box liner. James Monroe Smith, assignor to The Kennedy Car Liner and Bag Co., Shelbyville, Ind. Filed Jan. 2, 1934. 1 claim. (Cl. 217-30).

2,017,640. Treatment of felts for paper machines. Leo Ubbelohde, Karlsruhe, Germany. Filed Jan. 4, 1933. 14 claims. (Cl. 92-49). Use of dyestuffs.

2,017,810. Paper blank for paper bottles and the like. Andrew Bodor and Lydia B. Koch, assignors to Reinforced Paper Bottle Corporation, New York, N. Y. Filed March 9, 1933. 1 claim. (Cl. 229-48).

October 22, 1935

2,017,985. Manufacture of cellulose. Erich Opfermann and Gustav-Adolf Feldtmann, assignors to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany. Filed June 9, 1933. 14 claims. (Cl. 92-9). Alkaline process pulp is treated with chlorine at a pH of 6-9.

2,018,237. Box-forming system. John S. Stokes and Ernest G. Rider, assignors to Stokes and Smith Company, Philadelphia, Pa. Filed Feb. 28, 1933. 52 claims. (Cl. 93-43).

2,018,240. Machine for making corrugated paper board. George W. Swift, Jr., assignor to George W. Swift, Jr., Inc., Bordentown, N. J. Filed Dec. 20, 1933. 8 claims. (Cl. 154-31).

2,018,244. Paper product and method of making. Alexander V. Alm, assignor to Dennison Manufacturing Company, Framingham, Mass. Filed Oct. 7, 1931. 4 claims. (Cl. 92-3). A thin, soft, flexible porous sheet of paper is prepared by parchmentizing only the surfaces of the fibers of a sheet of tissue paper.

2,018,276. Art of treating vegetable fibers. Ralph H. McKee, Jersey City, and Earle H. Morse, Nutley, N. J. Filed July 10, 1930. 8 claims. (Cl. 8-20). A product resembling natural wool is prepared by an oxidizing action at pH 5-8, and crinkling the fibers by treatment with sodium hydroxide of approximately 10 per cent strength.

2,018,380. Means for impregnating paper with liquid. Max Oberdorfer, St. Helens, Ore. Filed June 11, 1934. 1 claim. (Cl. 91-18).

2,018,319. Braking mechanism for paper rolls. Horace H. Raymond and Johnstone Vance, assignors of one-half to Vance and one-half to The Syanley Works, New Britain, Conn. Filed June 1, 1933. 11 claims. (Cl. 192-2).

2,018,382. Art of ply paper or board manufacture. John W. Sale, assignor to Hummel-Ross Fibre Corporation, Hopewell, Va. Filed Oct. 24, 1934. 8 claims. (Cl. 92-44).

2,018,396. Automatic carton setting-up machine. Martin Burger, assignor to Self-Locking Carton Company, Chicago, Ill. Filed June 20, 1931. 34 claims. (Cl. 93-37).

2,018,490. Method of producing paper pulp from fibrous material. Edwin P. Jones and James M. Dempsey, assignors to Champagne Paper Corporation, New York, N. Y. Filed April 10, 1935. 8 claims. (Cl. 92-11). Mechanically decorticated flax is washed, cooked with an alkaline chemical in combination with a soluble sulphite and bleaching.

2,018,621. Method of forming containers. Logan A. Becker, assignor to The Dobeckmun Company, Cleveland, Ohio. Filed June 4, 1934. 11 claims. (Cl. 93-36).

2,018,638. Manufacture of transparent paper. William Michael Driesen, assignor to S. D. Warren Company, Boston, Mass. Filed October 5, 1928. 10 claims. (Cl. 91-69). A web of paper constructed substantially exclusively of fibers of transparent substance and a film-matrix of cellulosic derivative film-material with anhydrous lanolin dispersed therein.

October 29, 1935

2,018,659. Preservation of cellulose material. Wallace T. Conn., assignor to the Government of the United States. Filed July 22, 1932. 6 claims. (Cl.

91-68). Degummed cellulose fibers containing a toxic dye, a fixer for said dye (potassium bichromate, copper sulphate and acetic acid) and a tar-like armoring.

2,018,660. Preservative process for cellulose materials. Wallace T. Conn, assignor to the Government of the United States. Filed Oct. 29, 1932. 5 claims. (Cl. 91-68). Fibrous material contains tannic acid and tartar emmetic mordant and a potassium bichromate oxidant.

2,018,661. Protective reagent for cellulose material. Wallace T. Conn, assignor to the Government of the United States. Filed Nov. 7, 1932. 2 claims. (Cl. 134-13). Tar and an oil soluble residue resulting from the reaction of alpha-naphthylamine with acetaldol.

2,018,718. Shingle element. Norman P. Harshberger, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed April 11, 1930. 7 claims. (Cl. 108-7).

2,018,722. Shingle. Don B. Humphrey, assignor to United States Gypsum Company, Chicago, Ill. Filed March 16, 1931. 1 claim. (Cl. 108-7).

2,018,800. Fireproof thermal insulator. Lawrence D. Morton, assignor to The Hinde and Dauch Paper Co., Sandusky, Ohio. Filed Aug. 29, 1931. 12 claims. (Cl. 154-45). Paper tubes bound together by thread-like narrow strips of fireproof cement.

2,018,875. Manufacture of sized papers. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Jan. 12, 1932. 4 claims. (Cl. 91-68). Pulp is first treated with a viscose solution and then with an acidified glue solution.

2,018,911. Composite construction material and method of making the same. Philip B. Brill and George H. Ellis, assignors to The Insulite Company, Minneapolis, Minn. Filed June 29, 1934. 11 claims. (Cl. 72-68).

2,018,937. Paper pulp and method of making the same. Sidney D. Wells and Gerald D. Muggleton, assignors to Lewis L. Alsted, Appleton, Wis. Filed Dec. 10, 1932. 5 claims. (Cl. 92-6). A pulp containing not less than 20 per cent pentosans and 10 per cent lignin is produced in a rod mill, followed by an alkaline bleach.

2,018,938. Apparatus for and method of treating and handling paper pulp and similar fibrous materials. Sidney D. Wells, assignor to Lewis L. Alsted, Appleton, Wis. Filed Jan. 9, 1933. 19 claims. (Cl. 92-9). Apparatus and method for deinking printed paper with a soapy solution.

2,019,101. Pressure sensitive adhesive tape. Ferdinand W. Humphner, assignor to Mid-States Gummed Paper Co., Chicago, Ill. Filed June 8, 1932. 5 claims. (Cl. 91-68). The web is treated with a sealing and fixing solution, stretching, drying and coating with a pressure-sentitive adhesive.

2,019,118. Laminated article. Wallace H. Carothers, Gerald J. Berchet and Ralph A. Jacobson, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del. Filed June 14, 1934. 7 claims. (Cl. 49-81). A laminated article comprising two laminae united by a film containing a polymer of vinylethinyl carbinol.

2,019,449. Albert C. Fischer, assignor to The Philip Carey Manufacturing Company, Lockland, Ohio. Filed Dec. 3, 1928. 4 claims. (Cl. 18-47.5).

2,019,452. Process of making synthetic lumber. Charles E. Hartford, assignor to National Cornstalk Processes, Inc., Chicago, Ill. Filed Oct. 10, 1932. 2 claims. (Cl. 92-39).

November 5, 1935

2,019,541. Smoothness tester. Ralph A. Masten, assignor to International Paper Company, New York, N. Y. Filed March 29, 1933. 9 claims. (Cl. 73-51). Means to pass air at substantially constant pressure between material and a smooth surface and means to indicate the time for a unit quantity of air to pass.

2,019,598. Production of cellulosic materials or cellulose. Henry Dreyfus, London, England. Filed Feb. 11, 1933. 2 claims. (Cl. 92-11). Material is impregnated under pressure with an aqueous solution of metallic bisulphites, Turkey red oil and free sulphur dioxide (ratio or free to combined sulphur dioxide less than 1:2) and cooking at 100-160 degrees C.

2,019,649. Vertical drier for web material. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed June 9, 1933. 2 claims. (Cl.34-48). The vertical paper drier consists of four vertical stacks of drier drums arranged in spaced relation in each stack and in staggered relation in adjoining stacks, with felts arranged to guide paper web through the drier.

2,019,845. Process and apparatus for making branded paper board and product thereof. Charles C. Colbert, George E. Preston and Lloyd C. Daly, Elkhart, Ind. Filed Feb. 26, 1934. 18 claims. (Cl. 92-39). The board has identification marks under a surface thereof and a clay coating on said surface, the marks becoming apparent on wetting the clay-coated side.

2,019,890. Method and apparatus for making fibrous shapes. Edmund Burke, Portland, Maine. Filed July 14, 1932. 21 claims. (Cl. 92-66). Method of making fibrous tubing by continuously advancing a dry fibrous core while applying thereto successive films of wet, fibrous material.

2,019,903. Manufacture of crinkled paper and the like. Rudolf Heitmann, Mannheim, Germany. Filed June 12, 1934. 6 claims. (Cl. 154-40). Die plates for producing crinkled webs and like material.

2,019,946. Process and apparatus for the manufacture of envelopes, bags and similar articles. Alfred Winkler and Max Dünnebier, Neuwied, Germany. Filed March 28, 1935. 34 claims. (Cl. 93-62).

2,020,056. Automatic control for paper machine driers. Norman B. Gibbs, Port Angeles, Wash. Filed Oct. 11, 1932. 11 claims. (Cl. 34-48). Means for applying moisture to the felt of a drying machine.

2,020,118. Paper-reeling apparatus. William R. Kellett and Charles M. Pearson, assignors to Paper Patents Company, Neenah, Wis. Filed Feb. 23, 1933. 13 claims. (Cl. 242-65).

November 12, 1935

2,020,328. Paper manufacture. Harold Robert Rafton, assignor to Raffold Process Corporation, Andover, Mass. Filed Oct. 8, 1930. 55 claims. (Cl. 91-68). Method of sizing a paper containing an alkaline filler.

2,020,437. Process for bleaching vegetable fibers. Irwin J. Smith, Albany, N. Y. Filed March 15, 1928. 17 claims. (Cl. 8-2). Hypochlorite bleaching.

2,020,454. Molded pulp article. Spaulding Bisbee, Wallace E. Parsons and William M. Sheffield, assignors to The Canal National Bank of Portland, Maine. Filed Oct. 18, 1930. 1 claim. (Cl. 217-21).

2,020,639. Thermal insulation unit or board. Ralph V. Grayson and Edgar G. Ballenger, Atlanta, Ga. Filed July 25, 1932. 8 claims. (Cl. 154-44).

2,020,646. Wrapper paper for cigars, cigarettes and the like. Philip Hornstein, Lawton, Okla. Filed Aug. 14, 1933. 1 claim. (Cl. 92-21). The pulp contains asbestos, gum acacia being added during boiling.

2,020,668. Tissue handkerchief and method. Kurt Wandel, New York, N. Y. Filed March 22, 1935. 12 claims. (Cl. 154-2).

2,020,928. Laminated sheet material. Benjamin Asnes, assignor to Dennison Manufacturing Company, Framingham, Mass. Filed Oct. 20, 1934. 23 claims. (Cl. 154-33). In a plurality of sheets adhesively united, one sheet is more wavy than the others.

2,020,973. Machine for making pasteboard boxes. John H. Stortz, Philadelphia, Pa. Filed May 21, 1931. 8 claims. (Cl. 93-36).

2,021,091. Package-making machine. Alfred German Rose, assignor to Rose Brothers (Gainsborough) Limited, Gainsborough, England. Filed Aug. 16, 1934. 9 claims. (Cl. 93-2).

2,021,105. Method and apparatus for making decorated boxes. Gideon R. Kreider, Jr., Lebanon, Pa. Filed Jan. 5, 1934. 8 claims. (Cl. 93-54).

2,021,125. Paper making. William P. McCorkindale, assignor to The McCorkindale Company, Holyoke, Mass. Filed Nov. 19, 1934. 6 claims. (Cl. 92-40). Method of applying size to a sheet of paper on a carrier as the making member moves away from receiving member.

November 19, 1935

2,021,141. Watermarking composition. John C. Boyer, assignor to National Listing Exchange, Los Angeles, Calif. Filed May 1, 1933. 8 claims. (Cl. 134-33). Formulas are given.

2,021,172. Paper impervious to moisture, water and grease. Edmond H. Bucy, assignor to Atlas Powder Company, North Chicago, Ill. Filed Jan. 21, 1933. 14 claims. (Cl. 91-68). An oil-soluble condensation product of the phenol-formaldehyde type in solution in a drying oil and casein are used.

2,021,254. Box and method of making the same. Chester E. Claff, Randolph, Mass. Filed July 18, 1934. 4 claims. (Cl. 93-43).

2,021,310. Continuous strip material process. Edward T. Jaeger, assignor to Oneida Paper Products Incorporated, Brooklyn, N. Y. Filed March 24, 1932. 8 claims. (Cl. 93-19).

2,021,612. Pulp-treating process. James S. Sconce, assignor to Hooker Electrochemical Company, New York, N. Y. Filed Feb. 19, 1934. 10 claims. (Cl. 8-2). Pulp is treated with chlorine in the presence of calcium carbonate and lime, maintaining a non-alkaline condition in the suspension.

2,021,716. Artificially colored building material. Orin R. Douthett, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed August 8, 1934. 4 claims. (Cl. 108-7). A bituminous-coated base containing mineral granules is covered with a colored film and fixing agent.

2,021,725. Manufacture of sulphur dioxide gas. Ingenuin Hechenbleikner, assignor to Chemical Construction Corporation, Charlotte, N. C. Filed Nov. 17, 1931. 7 claims. (Cl. 23-177). A sulphur burner.

November 26, 1935

2,021,938. Card or paper stock for use in duplicating processes. Raymond S. Jones, Wynnewood, Pa. Filed Sept. 16, 1933. 1 claim. (Cl. 41-31.6). The paper is treated so as to impart hygroscopicity to the faces only.

2,021,947. Making grease and moistureproof paper and similar material. John E. Schopp, Oak Park, Ill. Filed Sept. 12, 1933. 8 claims. (Cl. 91-68). The treating composition contains latex, casein, starch, a filler and shellac, giving a flexible, non-tacky coating.

2,021,948. Apparatus for testing porous materials. Rudolf Schopper, Leipzig, Germany. Filed June 22, 1931. 11 claims. (Cl. 73-51).

2,022,004. Paper sizing. Louis Leonard Larson, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del. Filed July 1, 1933. 15 claims. (Cl. 91-68). An aqueous emulsion of polyhydric alcohol-polybasic acid resin, containing 65-90 per cent by weight of a polyhydric alcohol ester of an acid, RCOOH, in which R contains not less than 15 carbon atoms.

2,022,010. Paper pulp-testing apparatus. Alfred Schopper, Leipzig, Germany. Filed Dec. 26, 1929. 9 claims. (Cl. 73-51).

2,022,064. Opaque material. Roger N. Wallach, assignor to Sylvania Industrial Corporation, Fredericksburg, Va. Filed March 24, 1932. 18 claims. (Cl. 154-46). A transparent sheet of regenerated cellulose, laminated on each side with a similar sheet impregnated with an opaque material.

2,022,088. Method of and apparatus for manufacturing paper matches. Nels H. Nelson, Dayton, Ohio. Filed July 24, 1933. 12 claims. (Cl. 144-51).

2,022,231. Preservation of vegetable-fiber material. Francis E. Cislak, assignor to Peter C. Reilly, Indianapolis, Ind. Filed March 17, 1934. 8 claims. (Cl. 92-21). The material is impregnated with water-insoluble borates and one or more of the following: ace-naphthene, fluorene, anthracene, phenanthrene, carbazole, a tar acid and metal salts of such acids.

2,022,276. Adhesive carbon paper. Harold W. A. Dixon and Robson S. Moore, assignors to Columbia Ribbon and Carbon Manufacturing Company, Inc., Glen Cove, N. Y. Filed Nov. 3, 1932. 11 claims. (Cl. 282-28). The base membrane carries a layer of a soluble adhesive material and a second layer of transfer ink.

2,022,298. Paper-making machine. Maurice O. Neilson, Ottawa, Ontario, Canada. Filed April 12, 1934. 17 claims. (Cl. 92-44). A slice, a housing across the front of the entire width thereof and a vertically adjustable lip therein.

2,022,305. Method of making receptacle blanks. Charles P. Wellman, West Medford, Mass. Filed Aug. 17, 1933. 7 claims. (Cl. 93-45).

2,022,309. Machine for making paper bottles. Andrew Bodor, assignor to Reinforced Paper Bottle Corporation, New York, N. Y. Filed Feb. 9, 1933. 66 claims. (Cl. 93-39).

2,022,311. Preparation of pulps containing hard binder substances. Harry C. Fisher, assignor to The Richardson Company, Lockland, Ohio. Filed June 27, 1932. 5 claims. (Cl. 92-21).

2,022,322. Coated absorbent materials and apparatus for producing the same. George E. Pelton, Alexandria, Va. Filed June 29, 1932. 19 claims. (Cl. 91-17). An apparatus is described.

2,022,336. Self-cleaning screen. Joseph E. Bower, Lincoln, Mont. Filed Jan. 30, 1935. 4 claims. (Cl. 210-173).

2,022,371. Machine for making paper box blanks. Carl Eisenlohr and Joseph Hren, Newark, N. J. Filed Oct. 19, 1934. 15 claims. (Cl. 93-55).

2,022,378. Metal digester having a corrosion resistant metal lining. Paul B. Lacy, Edwin F. Libby and Ralph V. Metz, assignors to Industrial Chemical Sales Company, Inc., New York, N. Y. Filed May 9, 1935. 6 claims. (Cl. 92-19). A sulphite pulp digester of steel with a firmly adherent, impervious, sprayed lining of a corrosion resistant metal.

2,022,429. Non-blistering roofing and method of preparing same. Charles J. Merriam, assignor to Stephen G. Wright, Chicago, Ill. Filed Feb. 3, 1934. 14 claims. (Cl. 91-70). The asphalt-saturated felt base is dusted with an inert powder before applying the air-blown asphalt coating.

2,022,490. Moistureproof material. William Hale Charch, assignor to Du Pont Cellophane Company, Inc., New York, N. Y. Filed Nov. 10, 1931. 32 claims. (Cl. 91-68). A Cellophane product.

2,022,563. Process and apparatus for the formation of channels in sheets of cardboard, corrugated cardboard or the like, Karl Hämmisch, assignor to Aktiengesellschaft für Cartonnagen-Industrie, Dresden, Germany. Filed Feb. 17, 1934. 32 claims. (Cl. 93-58).

2,022,589. Method of treating cellulosic matter. Alma Dobry, assignor to Compagnie de Produits Chimiques et Electrometallurgiques Olais, Froges et Camargue, Paris, France. Filed Feb. 19, 1934. 11 claims. (Cl. 18-54). The matter is treated with a concentrated aqueous solution of a metallic perchlorate and the cellulose precipitated from the solution.

December 3, 1935

2,022,654. Treatment of cellulosic materials. Henry Dreyfus. Filed Feb. 28, 1934. 19 claims. (Cl. 92-9). Lignin is extracted from the materials in solution in an organic solvent medium at an elevated temperature under pressure.

2,022,664. Manufacture of cellulose from lignocellulose materials. Walter Henry Groombridge and Eric Vernon Mellers, assignors to Celanese Corporation of America, a Corporation of Delaware. Filed March 14, 1935. 12 claims. (Cl. 92-9). Lignin is extracted from material by solution in organic solvents or solvent mixtures which contain inorganic basic substances.

2,022,687. Saturating machine and method of using same. Izador J. Novak, assignor to Raybestos-Manhattan, Inc., Bridgeport, Conn. Filed Oct. 20, 1933. 7 claims. (Cl. 92-40). The freshly formed paper web is passed through a permeating bath before removal from the forming surface.

2,022,773. Blank-forming machine. Cutler D. Knowlton, assignor to Hoague-Sprague Corporation, Lynn, Mass. Filed March 10, 1933. 33 claims. (Cl. 92-36).

2,022,799. Cutting machinery. John Edward Blosser and Paul Burke, assignors to Veldown Com-

pany, Inc., South Glens Falls, N. Y. Filed Oct. 31, 1934. 7 claims. (Cl. 164-60). Machine for cutting a log of paper into sections.

2,022,872. Manufacture of pulp. Clinton K. Textor, assignor to Northwest Paper Company, Cloquet, Minn. Filed Sept. 16, 1926. 10 claims. (Cl. 92-11). Wood is digested with a solution containing alkali salts of sulphurous and carbonic acid, sufficient sulphite being used in excess of the amount required to release the cellulose to prevent staining.

2,022,873. Manufacture of pulp. Clinton K. Textor, assignor to Northwest Paper Company, Cloquet, Minn. Filed Sept. 16, 1926. 5 claims. (Cl. 92-11). Hardwood or short-fibered wood is digested with an alkaline sodium sulphite liquor, containing sufficient excess of sodium sulphite to prevent staining and a sufficient amount of a sodium carbonate salt to give an alkalinity of about pH 7.5 to 9.5 at 175 to 188 degrees.

2,023,019. Apparatus for saturating sheet material. George P. Heppes, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed May 20, 1930. 5 claims. (Cl. 91-55). Means for applying asphalt to roofing felt.

2,023,031. Boiler for pulp mills and the like. Josiah H. Rohrer, assignor to Badenhausen Corporation, Cornwells Heights, Pa. Filed June 22, 1931. 2 claims. (Cl. 23-277). Apparatus for treating waste wood pulp liquor (vertical furnace).

2,023,106. Stock consistency regulator. Stephen A. Staege, assignor to Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. Filed May 11, 1934. 12 claims. (Cl. 92-46).

2,023,163. Log-scrubbing machine. Charles H. Burr, assignor to Great Northern Paper Company, Millinocket, Maine. Filed June 3, 1933. 2 claims. (Cl. 15-21). A brush in a trough for scrubbing logs.

2,023,165. Winding machine. James A. Cameron, assignor to Cameron Machine Company, Brooklyn, N. Y. Filed July 13, 1933. 9 claims. (Cl. 242-66.)

2,023,200. Art of molding pulp containers. Ernest Huff and Andrew Keiding, assignors to American Lace Paper Company, Milwaukee, Wis. Filed Jan. 9, 1933. 10 claims. (Cl. 92-54).

2,023,273. Method and apparatus for making fibrous sheet material. Charles W. Leguillon, assignor to The B. F. Goodrich Company, New York. N. Y. Filed Aug. 23, 1932. 4 claims. (Cl. 154-33).

2,023,357. Paper toweling. Leo M. Harvey, Los Angeles, Calif. Filed July 10, 1935. 9 claims. (Cl. 281-5).

DECEMBER 10, 1935

2,023,455. Pulp shredder. John J. Warren, Brownville, N. Y. Filed Feb. 10, 1934. 9 claims. (Cl. 92-20). Rotary shredder drum and a pair of rolls.

2,023,675. Fibrous composition. Harry C. Fisher, assignor to The Richardson Company, Lockland, Ohio. Filed May 25, 1929. 12 claims. (Cl. 106-31). Method of coating fibers with bitumens.

2,023,711. Material containing parchmentized fiber and method of producing the same. Ervin E. Strawn, assignor to Paterson Parchment Paper Company, Passaic, N. J. Filed July 27, 1932. 14 claims. (Cl. 8-20). Process of applying to one surface of a porous cellulosic base an extremely thin coating compound not affected by parchmentizing compounds.

2,023,803. Decalcomania paper. Lewis Davis, assignor to McLaurin-Jones Co., Brookfield, Mass. Filed May 31, 1934. 9 claims. (Cl. 41-33).

2,023,888. Shot shell and process of making same. Edwin L. Johnson, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Aug. 19, 1930. 2 claims. (Cl. 91-68). Paper shells coated with a cellulose ester composition and then impregnated with a paraffin composition.

2,024,013. Manufacture of printed corrugated wrappers. Melvin H. Sidebotham, assignor to Specialty Automatic Machine Company, Medford, Mass. Filed Feb. 27, 1934. 11 claims. (Cl. 93-48). Of two webs of paper, one is corrugated and one is printed and the two united with adhesive.

2,024,079. Apparatus for drying paper in a continuous web. William Whiting, assignor to Whiting Paper Company, Holyoke, Mass. Filed May 11, 1934. 2 claims. (Cl. 34-48). A straight line drying tunnel with a plurality of drying cylinders at the inlet end of the tunnel.

2,024,123. Coating composition and method of preparing same. Webster E. Byron Baker, assignor to Stein, Hall and Company, Inc., New York, N. Y. Filed July 2, 1932. 16 claims. (Cl. 91-70). A coating composition comprising starch mildly esterified and dextrinized with a weak monobasic organic acid, ammonia sufficient to make the product basic in reaction and dry soluble sodium silicate.

DECEMBER 17, 1935

2,024,224. Re-enforced gummed tape. Ferdinand W. Humphner, assignor to Mid-States Gummed Paper Co., Chicago, Ill. Filed Jan. 15, 1934. 8 claims. (Cl. 154-43).

2,024,248. Paper-treating means. Harold Robert Rafton, assignor to Raffold Process Corporation, Andover, Mass. Filed Nov. 1, 1932, 3 claims. (Cl. 91-55). Method of coating paper with a material in a volatile solvent; also, recovery of solvent.

2,024,365. Carton embossing apparatus. William H. Inman and George E. Weinman, assignors to Bloomer Bros. Company, Newark, N. Y. Filed Jan. 30, 1934. 6 claims. (Cl. 101-26).

2,024,424. Machine for processing material and method of controlling the operation thereof. Tandy A. Bryson, Troy, N. Y. Filed Sept. 15, 1932. 29 claims. (Cl. 92-27).

2,024,600. Manufacture of impregnated fiber articles or sheets. George A. Richter and Milton O. Schur, assignors to Brown Company, Berlin, N. H. Filed Sept. 2, 1932. 8 claims. (Cl. 91-70). A small percentage of regenerated cellulose is an added primary impregnating phase.

2,024,655. Process of producing multi-layer paper, cardboard, pasteboard, boxboard and the like, and product thereof. Ernest Fues, assignor to Anthony William Dellar, Brooklyn, N. Y. Filed Aug. 26, 1932. 10 claims. (Cl. 92-40). A hydrated cellulose containing a mineral filler is added to the wet paper surface and the product finished to form an integral product.

2,024,689. Production of cellulose from lignocellulosic materials. Walter Henry Groombridge and Eric Vernon Mellers, assignors to Celanese Corporation of America, a Corporation of Delaware. Filed Jan. 22, 1935. 10 claims. (Cl. 92-9). Materials are extracted with a solvent mixture containing water and at least two organic liquids which are chemically inert towards lignin.

2,024,727. Covering for curing concrete. Dozier Finley and William R. Greig, assignors to The Paraffine Companies, Inc., San Francisco, Calif. Filed May 1, 1931. 16 claims. (Cl. 154-50). A water-absorbent material.

2,024,820. Method of and machine for manufacturing bags or envelopes. William Edwin Ellens, assignor to John Dickinson and Co., Limited, Herts, England. Filed Nov. 19, 1932. 5 claims. (Cl. 93-19).

2,024,861. Shingle. Harry H. Honigbaum, Forest Hills, N. Y. Filed Oct. 29, 1934. 3 claims. (Cl. 108-7).

2,024,932. Apparatus for tip gluing paper sheets and the like. William H. Kushera and Fred M. Brackett, assignors to The Brackett Stripping Machine Company, Topeka, Kan. Filed May 18, 1934. 8 claims. (Cl. 154-42).

2,025,000. Regenerated cellulose sheet or film and method of making same. Daniel W. Losee, assignor to Johnson-Losee Corporation, Long Island City, N. Y. Filed Aug. 1, 1933. 12 claims. (Cl. 91-68). Starting material is cotton seed hulls; articles are fireproofed by impregnation with urea phosphate.

2,025,010. Crowning and concaving device for roll grinding machines. Harold E. Balsiger, assignor to Landis Tool Company, Waynesboro, Pa. Filed March 31, 1932. 8 claims. (Cl. 51-49).

DECEMBER 24, 1935

2,025,053. Method of and apparatus for molding pulp articles. Roy D. Heymann and Frederic C. Clark, assignors to Moulded Pulp Corporation, New York. N. Y. Filed May 26, 1933. 4 claims. (Cl. 92-54).

2,025,275. Joint for paper drier felts or aprons or the like. James K. Diamond, assignor to Clipper Belt Lacer Company, Grand Rapids, Mich. Filed July 27, 1935. 11 claims. (Cl. 24-33).

2,025,337. Bark-removing machine. Hugh B. Camden, Richmond, and Robert S. Burruss and William H. Burruss, Lynchburg, Va. Filed June 21, 1934. 2 claims. (Cl. 144-208).

2,025,375. Method of coating webs. James A. Cameron and Robert McC. Johnstone, assignors to Cameron Machine Company, Brooklyn, N. Y. Filed July 13, 1933. 2 claims. (Cl. 91-68).

2,025,376. Conditioned material and method of preparing same. Clarence E. Coleman, assignor to Du Pont Cellophane Company, Inc., New York, N. Y. Filed April 12, 1932. 4 claims. (Cl. 18-57). The roll of tightly wound regenerated cellulose is aged at 30-40 per cent relative humidity.

2,025,445. Wire-faced roll for paper-making machines. Einar I. Flateboe. Everett, Wash. Filed Dec. 19, 1934. 6 claims. (Cl. 92-48).

2,025,540. Method of making electrical insulators. Gordon R. Langley, assignor to General Electric Company, Schenectady, N. Y. Filed Feb. 27, 1934. 1 claim. (Cl. 154-2.6). Paper coated with fused phenolic condensation product is used.

DECEMBER 31, 1935

2,025,788. Coating composition. Joseph H. Swan, 3rd, assignor to The Gardner-Richardson Company, Middletown, Ohio. Filed Nov. 18, 1931. 3 claims. (Cl. 134-17). Coating composition for a greaseproof paper.

2,025,891. Reclaiming by-products. Peter A. Paulson, Appleton, Wis. Filed Sept. 14, 1935. 8 claims. (Cl. 92-7). Method of evaporating sulphite waste liquor.

2,026,049. Shredding and mixing machine. Albert Lasch and Ernest Strömer, assignors to Baker Perkins Company, Inc., Saginaw, Mich. Filed May 2, 1934. 1 claim. (Cl. 92-20).

2,026,194. Composite re-enforced paper fabric. Edward C. Smith, assignor to American Reenforced Paper Company, Attleboro, Mass. Filed June 29, 1934. 4 claims. (Cl. 229-49).

2,026,253. Sheet material and method of manufacturing the same. Joseph Raymond Sanborn, assignor to International Paper Company, New York, N. Y. Filed March 14, 1935. 14 claims. (Cl. 92-39). A sheet formed from growths formed from slime producing micro-organisms.

2,026,402. Machine for cutting paper or the like. Phil G. Schlemmer, assignor to Rose Barabara Henderson, Nanuet, N. Y. Filed Nov. 17, 1933. 3 claims. (Cl. 164-42).

2,026,403. Machine for making containers. Phil G. Schlemmer, assignor to Rose Barbara Henderson, Nanuet, N. Y. Filed Jan. 9, 1934. 5 claims. (Cl. 93-60).

TAPPI To Hear Frank A. Vanderlip

The annual luncheon of the Technical Association of the Pulp and Paper Industry, the important closing feature of Paper Week at the Waldorf-Astoria Hotel, New York, will be held on Thursday, February 20, at 1:00 P. M.

The speaker this year will be Frank A. Vanderlip, well-known economist, banker and former Assistant Secretary of the Treasury. Many who have read Mr. Vanderlip's articles recently published in the Saturday Evening Post will want to hear him in person.

Mr. Vanderlip is a graduate of the University of Chicago, after which he became financial editor of the Chicago Tribune and associate editor of the Economist. From 1909 to 1919 he was president of the National City Bank of New York.

The subject of Mr. Vanderlip's talk will be "Tomorrow's Money." This luncheon is open to all who may care to be present. Executives of the industry are particularly invited to attend. Reservations should be sent to R. G. Macdonald, Secretary of TAPPI, 122 East Forty-second street, New York. Luncheon tickets are $3.50, but no charge is made for regular registrations at the TAPPI meeting.

Northern New York TAPPI Group to Meet

The next meeting of the Northern New York Group of the Technical Association of the Pulp and Paper Industry will meet at Tubbert's Restaurant, 1300 North Salina Street, at 6:30 P. M., February 15, 1936.

Carleton E. Curran, chief of the Pulp and Paper Section of the Forest Products Laboratory, Madison, Wisconsin, will be one of the speakers. The other speaker will probably be A. Byron Hunicke, of the St. Regis Paper Company, who will talk on Management and Its Relationship to Industry.

Anyone engaged in the pulp and paper or related industries will be welcome to attend. Those planning to attend the dinner should notify John Schuber, St. Regis Paper Company, Deferiet, N. Y.

Cast Ferrous Alloys in the Paper Industry*

By F. L. LaQue[1]

The Materials of Construction Committee having embarked on a survey of the present uses of materials in the paper industry, the writer was delegated to prepare some notes on the uses of cast ferrous materials. As with other parts of the survey, this can be no more than a general and uncritical listing of applications without any attempt to designate what material is best suited to each purpose. The principal reason for this restriction in scope is, of course, the fact that there are bound to be well founded differences of opinion as to the proper order of merit of materials. Further, conflicting commercial interests would undoubtedly lead to charges of bias and favoritism if the committee were to presume to rate materials in order of merit for particular types of service, even if the committee were able to become convinced of a proper order of merit.

At the same time it is true that before the committee can take much action leading to improvements in construction materials it is necessary to take stock of the present situation. Thus, it is hoped that the survey will be useful as a basis for further work.

Since the initial effort must necessarily be incomplete, and perhaps inaccurate, it is hoped that those who review this preliminary survey will present critical comments, either at the annual meeting in February, or by correspondence with J. D. Miller, chairman of the Committee either before or after that meeting.

These notes are to be confined to cast ferrous materials and for the present purpose ferrous materials may be defined as those of which the principal constituent is iron, that is, those having an iron content in excess of fifty per cent.

The Cast Irons

Of course, cast iron is the most commonly used cast ferrous material, and a detailed listing of the uses of cast iron in the paper industry would fill a book. Consequently, the references to cast iron will be necessarily incomplete and will be confined to those uses which seem most important to the writer.

In addition to ordinary cast iron, considerable use is being made of cast irons improved by the addition of such alloying elements as nickel, chromium and molybdenum. Reference to these will be made under the general term "alloy cast iron" without attempting to indicate the actual compositions used for particular purposes. An exception to this will be made in the case of the highly alloyed iron "Ni-Resist"[2] which hardly belongs in the same classification as the low alloy irons. For convenient reference, the analyses of the two common types of Ni-Resist are given below:

	Analysis (Per cent)				
	T.C.	Si	Ni	Cr	Cu
Regular Ni-Resist.....	2.8-3.1	1.4-2.2	13-14.5	1.75-2.5	5.5-6.5
Copper Free Ni-Resist..	2.8-3.1	1.4-2.2	13-21	1.75-2.5	.30 max.

It would be useful to be able to suggest general specifications for cast iron, but it is very difficult to do so since the characteristics readily covered by specification are limited. The qualities of cast iron most readily described by a specification are strength and hardness. However, these properties fail to cover all the characteristics of cast iron that

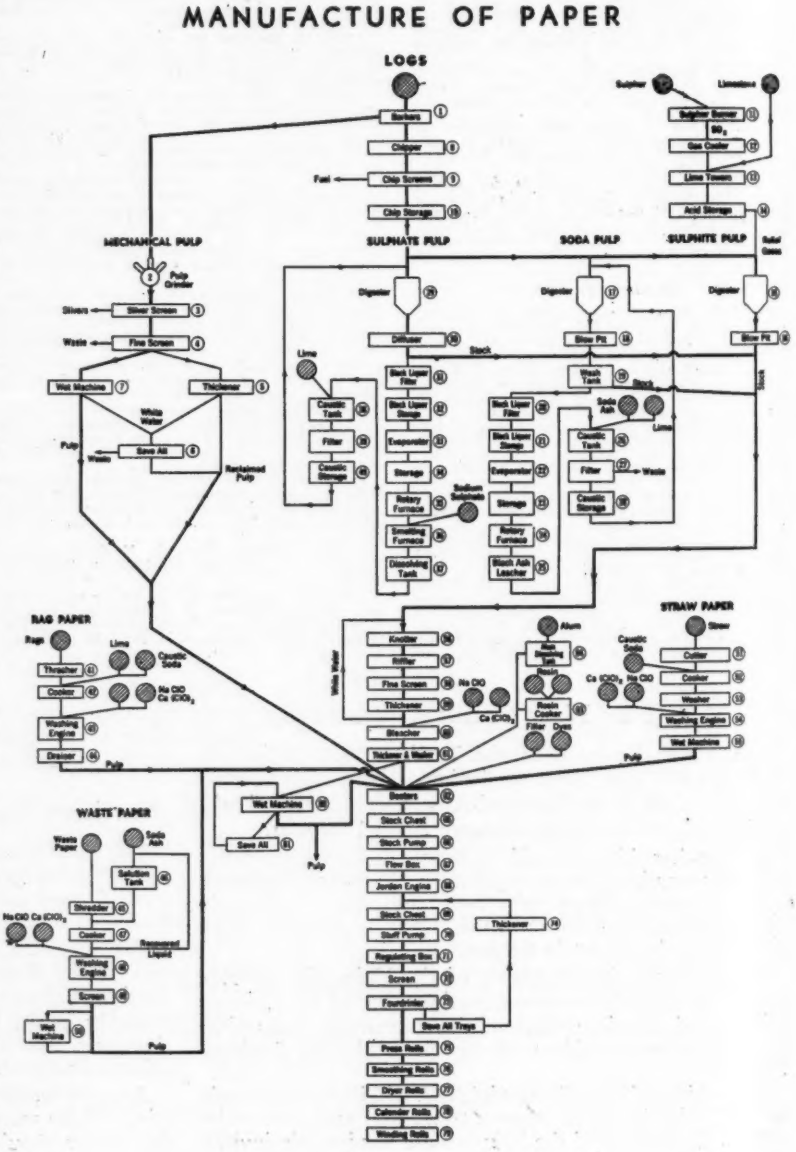

FIG. 1
Diagrammatic flow sheet. See opposite page for key.

* To be presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 17 to 20, 1936.

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[2] Trade mark registered.

TABULATION OF APPLICATIONS OF CAST FERROUS MATERIALS IN THE PAPER INDUSTRY

Application	Flow Sheet Reference No.	Materials Used
Log conveyor sprockets and gears	1	Malleable iron, plain and alloy cast iron
Log conveyor buttons	1	Chilled iron, alloy chilled iron
Barker gears	1	Plain and alloy cast iron
Grinder cylinders	2	Plain and alloy cast iron
Grinder saddle	3	Plain and alloy cast iron
Grinder reverse valve	2	Plain and alloy cast iron
Grinder dressing knurls and burrs	2	Alloy chilled iron
Sliver and fine screen gears, frames, and supports	3, 4, 9, 56, 58, 72	Plain and alloy cast iron
Diaphragm screen cams and frames	4	Plain and alloy cast iron
Centrifugal screen impellers, gears, frames and supports	4	Plain and alloy cast iron
Cylinder mould spiders and gears	5, 6, 7, 50, 55, 59, 61, 74, 80, 81	Plain and alloy cast iron and Ni-Resist
Vacuum thickener gears, trunnions and valves	5, 6, 59, 61, 74, 81	Plain and alloy cast iron and Ni-Resist
Disintegrater gears	8	Plain and alloy cast iron
Disintegrater anvils	8	Plain and alloy chilled iron
Chipper discs	8	Cast steel and chilled face alloy cast iron
Chipper gears	8	Plain and alloy cast iron
Chipper frame and housing	8	Plain and alloy cast iron
Sulphur burner nozzles	11	Stainless steel
Hot sulphur dioxide gas lines	11–12	Plain and alloy cast iron, Ni-Resist and stainless steel
Sulphur dioxide gas blowers or fans	12–13	Stainless steel
Lime rock crushers	.....	Plain and alloyed cast steel, alloy chilled iron
Tower acid pumps, valves and lines	13–14	Stainless steel
Sulphite cooking acid pumps, valves and lines	14–15	Stainless steel
Sulphite digester cover liners	15	Stainless steel
Sulphite digester relief strainers	15	Stainless steel
Sulphite digester relief valves and lines	15	Stainless steel
Sulphite digester test cocks	15	Stainless steel
Sulphite digester top and bottom sleeves	15	Stainless steel
Sulphite digester bottom cross, discharge valves and steam check valves	15	Stainless steel
Sulphite digester thermometer wells	15	Stainless steel
Sulphite digester blow lines and target plates	16	Plain and alloy cast iron, Ni-Resist and Stainless Steel
Sulphite digester circulating system pumps and lines	15	Stainless steel
Sulphite digester hot acid system eductors	15	Stainless steel
Sulphite digester hot acid and circulating system pipe lines, valves and fittings	15	Stainless steel
Soda and sulphate pulp digester valves and fittings	17 & 29	Plain and alloy cast iron, Ni-Resist and stainless steel
Black liquor filter spiders, valves and trunnions	20 & 31	Plain and alloy cast iron, and Ni-Resist
Black liquor pipe lines, valves and fittings	21 & 32	Plain and alloy cast iron, and Ni-Resist
Black liquor pumps	.....	Plain and alloy cast iron, and Ni-Resist
Black liquor evaporator bodies	.....	Plain and alloy cast iron
Rotary furnace drive gears and pinions	24 & 35	Plain and alloy cast iron
Rotary furnace discharge lips	24 & 35	Plain and alloy cast iron and Ni-Resist
Smelting furnace spouts	36	Plain and alloy cast iron and Ni-Resist
Green liquor pumps, pipe lines, valves and fittings	27, 37	Plain and alloy cast iron and Ni-Resist
Causticizing tank agitators	26, 28	Plain and alloy cast iron and Ni-Resist
Caustic pumps, pipe lines, valves and fittings	28, 40	Plain and alloy cast iron and Ni-Resist
Rag thresher gears and frame	41	Plain and alloy cast iron
Rag cutter gears and frame	41	Plain and alloy cast iron
Rotary cooker gears	42, 47, 52	Plain and alloy cast iron
Straw cutter gears and frame	51	Plain and alloy cast iron
Paper shredder rolls and gears	.....	Plain and alloy cast iron
Cooker false bottom spiders	47	Plain and alloy cast iron and Ni-Resist
Bleach lines and pumps (calcium hypochlorite)	60	Plain and alloy cast iron and Ni-Resist
Alum pumps, piping and valves	64	Silicon iron
Beater tubs	62	Plain and alloy cast iron
Beater drive gears, pulleys and sprockets	62	Plain and alloy cast iron
Stock chest agitator gears and propellers	65, 69	Plain and alloy cast iron
Stock pumps, liners and gears	66	Plain and alloy cast iron and Ni-Resist
Jordan engine shells, plugs, pulleys and frame	68	Plain and alloy cast iron and Ni-Resist
Fourdrinier frame and gears	73	Plain and alloy cast iron
Press rolls	75	Plain and alloy cast iron and Ni-Resist
Dryer rolls and heads	77	Plain and alloy cast iron
Dryer gears and frame	77	Plain and alloy cast iron
Calender rolls	78	Plain and alloy chilled iron
Crepe paper rolls	.....	Alloy cast iron

MISCELLANEOUS

Application	Flow Sheet Reference No.	Materials Used
Pipe lines, valves and fittings	.....	Plain and alloy cast iron and Ni-Resist
Feed water pumps	.....	Plain and alloy cast iron and Ni-Resist
Hydraulic turbine runners	.....	Plain and alloy cast iron and cast steel, Ni-Resist, stainless steel
Grate bars and stoker parts	.....	Plain and alloy cast iron, and Ni-Resist
Paper plate dies	.....	Invar type cast iron
Various machine frames, gears, sprockets, pulleys, bearing blocks and housings	.....	Plain and alloy cast steel and plain and alloy cast iron

must be considered in applying it to specific applications. Amongst these other characteristics are machinability, resistance to wear, corrosion or the effects of heat, and the ability to acquire a high finish or polish where such surfaces are needed.

Desired characteristics can often be obtained by broad specifications of chemical analysis outlining the desired range of important elements. However, it should be noted in this connection that chemical specifications should provide for the effects of casting size and section thickness on the structure of the iron. Suggestions as to proper chemical specifications for specific purposes may be obtained readily from the firms supplying the alloying elements used to improve cast iron.

As stated above, the properties of strength and hardness are readily covered by specification. The American Society for Testing Materials and the American Foundrymen's Association jointly have issued tentative specifications covering several grades of cast iron ranging in tensile strength from 20,000 to 60,000 pounds per square inch. These are included in the A. S. T. M. Tentative Specification A-48-32T(*1*). It should be noted that these specifications provide principally for control of strength and do not include the other important characteristics mentioned previously. They also do not include such important types of cast iron as chilled, or locally chilled cast irons, nor such special products as Ni-Resist.

In addition to the A.S.T.M., A.F.A., general specifications, many progressive manufacturers of paper mill equipment have realized the possibilities of controlling and improving the properties of their cast iron by working up specifications appropriate to their products and further advances along this line may reasonably be expected.

Stainless Steels

The general term "stainless steel" will be used to refer to chromium-nickel-iron alloy castings produced in accordance with TAPPI Standard E 400s covering such castings as used for sulphite service. At this point it may be noted that the Materials of Construction Committee is revising this specification slightly in order to clear up the occasional misinterpretation of supplementary *note 2* concerning the usefulness of molybdenum additions. The effect of molybdenum on corrosion resistance seems to be most pronounced in the lower ranges of chromium content allowed by the specifications; experience also has indicated that alloys containing chromium in excess of 28 per cent and nickel in excess of 9 per cent do not require a molybdenum addition to make them suitable for sulphite service. Consequently, the specification has been revised so as to make supplementary *note 2* read:

"There is plenty of experimental evidence demonstrating the power of molybdenum to contribute extra resist-

ance to corrosion by sulphurous acid and calcium bisulphite and the committee considers its presence up to 4 per cent a distinct advantage in alloys containing less than 28 per cent chromium and 9 per cent nickel. It believes, however, that the specification of a molybdenum content may properly be left to the option of the purchaser."

The term "silicon iron alloy" will be applied to alloys of silicon with iron containing about 14 per cent silicon, such as Duriron, Corrosiron and Tantiron.

For convenience and conciseness in presentation, applications of cast ferrous materials will be listed in the form of a table in which reference will be made by number to the diagrammatic flow sheet shown in Fig. 1. It is hoped that comments from the industry will enable the committee to improve this table in the directions of both completeness and accuracy.

Literature Cited

(1) Proc. Am. Soc. Testing Materials, 32, Part I:625 (1932).

The Thorsen-Héry Beater*

By George W. Dodge[1]

Abstract

A description of the Thorsen-Héry beater and a comparison of its power requirements and hydrating effects with the Hollander type of beater.

When one studies the evolution of paper making, he is impressed with the fact that from a mechanical standpoint, it has been exceedingly slow. Much equipment still in use seems to fill the requirements from a mechanical standpoint and is still in operation after fifty years service. It is astonishing to find literature printed fifty years ago on the subject of paper making, illustrating such equipment as the so-called beater engine, practically identical with much of the present contrivances used for the breaking and hydrating of stock fibers.

In the passing of time, much development in the art of paper making has taken place, but the basic principle of treating any fiber has remained unchanged. It consists of working the fiber in the presence of water between metallic surfaces until it is properly fibrilated and capable of being formed into a uniform and homogeneous sheet of required characteristics. The operation today is under the control, generally, of a competent man who controls the art of paper making and can produce by his control of this operation, specification paper of all grades, from tissues to heavy boards, hard and soft sheets, transparent and opaque, low and high finishes, and on through the endless list of weights, grades and qualities.

It does seem that in view of the importance of this phase of the manufacturing problem, that some help should be given by way of mechanical improvement to the essential equipment with which this individual has to work, especially since much of the present equipment is

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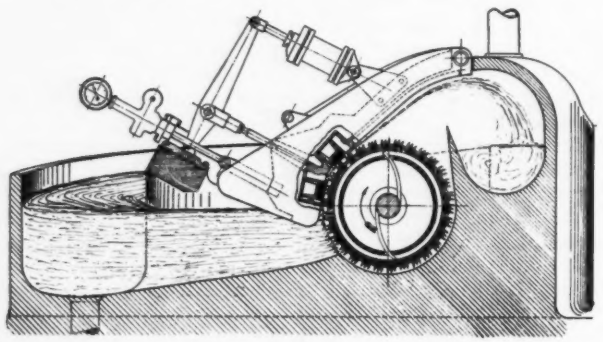


FIG. 1

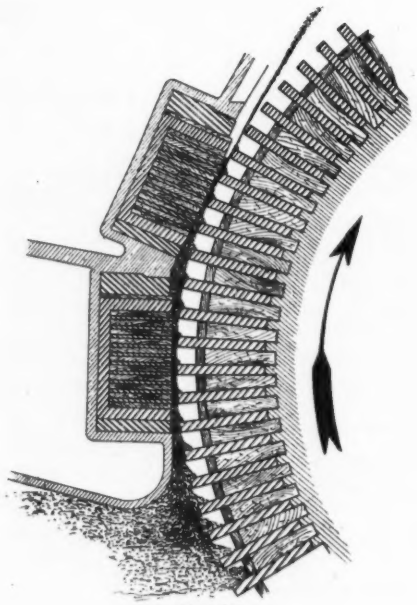


FIG. 2

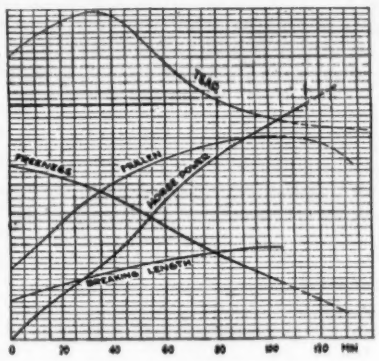
inefficient, both on a power and time basis, as well as a control basis. To secure low stock furnish costs and low conversion costs, full value must be developed from the stock as used, and maximum production obtained from the invested capital and power consumed, and without mechanical equipment capable of developing such costs, we can only expect conversions that are abnormal.

To what extent the matter of stock preparation, as referred to what is known as beating, enters into the operating costs, may be comprehended somewhat by a study of figures, with the greater part of which most of us are familiar.

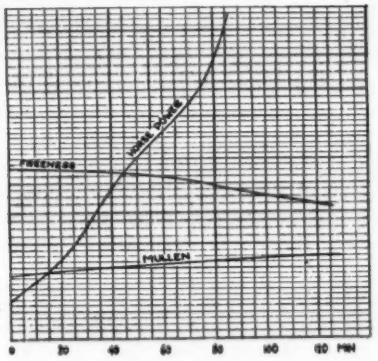
Beating power per ton per day	30 hp.	—for complete hydration.
Jordan power per ton per day	10 hp.	—for partial refining.
Pre-hydration with beaters	10 hp.	—for partial hydration.
Stock breaking and wetting	3 hp.	—for preparing and wetting pulp.
Pumping stock and agitating	2 hp.	—for handling and small hydration.

A proper combination of these power figures for any existing operation is indicative of what the total power consumption is at present and, of this total, it is evident that beater and jordan power represent the greater part.

The Thorsen-Héry beater was originally brought to my attention about a year ago and, like many others, I was reluctant to accept operating figures and performance records developed in Continental Europe and England. These have, however, been personally checked and verified, as well as much of the operating and performance data cov-



THORSEN-HÉRY BEATER
FIG. 3
Kraft.



STANDARD HOLLAND BEATER
FIG. 4
Sulphite.

ering kraft, sulphite, soda, esparto and rag stocks and, without question, this beater represents in my opinion the greatest improvement in both mechanical and operating performance of any beater so far introduced to the industry. The reason for this exceptional performance is readily explained by a study of the following points:

1. STOCK PREPARATION:

Dry lapped stock must be wetted and broken down before any beating or hydration can be accomplished; it is best always to do this as a separate operation in an efficient manner with an efficient machine, and not at the expense of such machines as are provided for hydration, especially if they be of the beater type, as it is done at the expense of beater tackle, power and control.

2. BEATER OPERATION:

The beater roll rotates in a direction opposite to that of all other Holland type beaters, which results in the beater bars being presented to the incoming stock against the direction of the flow. This results in an unique result, picking up only such stock as is needed for treatment between the roll bars and the plate bars. No excess stock is carried between the roll bars and thereby the acceleration power is minimized. The plate area is of such quantity that in combination with the large number of bars in the roll, a large number of inch cuts per minute are developed.

3. CIRCULATION:

Such stock as is picked up by the roll after passing the plate is thrown clear of the revolving roll by centrifugal action, and, without the necessity of doctors or other devices, delivered to the mixing chamber back of the roll. No stock is carried by the roll over and into the incoming stock. This reduces the circulating power, as the beater tub is so designed as to provide a gravity fall of stock to the in-running side of the roll, and of such a gradient as to handle 8 per cent consistency stock. See Figs. 1 and 2.

4. STOCK DENSITY AND DEVELOPMENT:

This beater is designed to handle 8 per cent consistency stock and, as such, provides hydration at high densities with the resulting time cycle and stock development as indicated in Figs. 3 and 4.

5. POWER REQUIREMENTS:

Power being a measure of value from a mechanical standpoint, it is of importance here to note by comparison the power requirements of this beater. The field is so large that it was found necessary to classify and average beater performance and, from a large volume of data, Fig. 5 following has been compiled:

REFERRING TO CHART "A" (Fig. 5)
"A"—New high speed Holland type beater.
"B"—Colloid mill hydrator.
"C"—High speed high bed plate Holland beater.
"D"—Old style Holland beater.
"E"—Thorsen-Sheldon beater.
"F"—Radial bowl type.
"G"—High bed plates lava roll.
"H"—Thorsen-Héry beater.

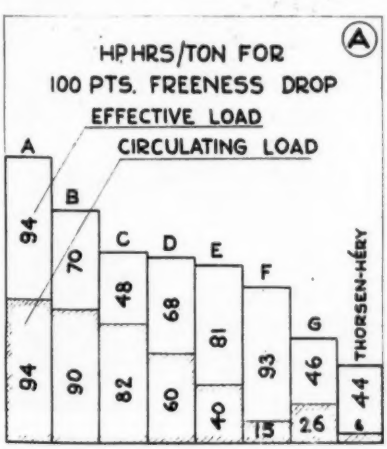


FIG. 5A

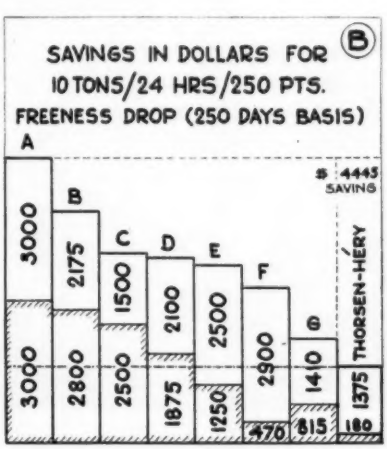


FIG. 5B

Referring to Chart "B" (Fig. 5).

These performances were evaluated in dollars, using thirty dollars per horsepower per year, or 5 mills per kilowatt hour as a basis, and 250-day year to compensate for idle beating time, which is usual in this particular operation.

This indicates a value quite unusual in beater performance, and places this equivalent in a class which can be figured to return 50 per cent on the capital investment, without consideration for the stock value increase, due to improvement in such values as tear and Mullen and controlled operation.

6. Operating control:

The controlled operation is provided by uniform action of the roll in relation to the bed plate, constant circulation only at the rate demanded for hydration, together with bed plate pressure control by means of air pressure. The bed plate is suspended at a point above the roll, which insures a radial pressure between roll and plate. Such wear as takes place is uniform over the plate area. Perfect alignment of plate and roll is provided and assured over the life of the roll filling, which is extended due to lack of eddy currents between bars which tend to produce a wash or cavitation in the bars in standard beaters. The wear experienced to date on beater filling over a two year period amounts to 1/16 inch in the roll diameter, and filling is in perfect shape probably due to the fact that no breaking up of stock is done by the beater roll.

7. Drive:

The beater roll in this beater is turning in fixed bearings, and may be direct connected through reduction gear, chain, Tex-ropes or belt to motor or line shaft. This fact eliminates many objectionable features encountered with standard beaters, such as stuffing box trouble, jumping rolls, uneven wear on rolls, stresses in drive unit, lubrication and over-driving the beater.

The capacity of the beater is no longer limited by the circumferential speed of the beater roll or weight of the beater roll itself. These two factors are flexible and the roll is stiff enough to take any pressures which may be imposed upon it. Such being only limited by the capacity of the drive provided, which may be fixed or variable speed as desired.

8. Sizes and types:

The Thorsen-Héry beater which has been described herewith lends itself to many installations where slush stock is available and, with certain slush preparing equipment, can be generally used where lap stock is used to make up the beater furnish. It can be installed in pairs, minimizing the floor space requirement, and is available in either cast-iron, cast-iron tile lined, concrete or concrete tile lined tub construction. It is available in sizes ranging from 700 pounds to 2,000 pounds (8 per cent) capacity.

9. Trends and power savings:

In recent years, until the advent of the Thorsen-Héry beater, paper manufacturers, disgusted with high cost of space and inefficiency of old type Hollanders, have drifted into various uses of jordans as hydrators, operating by continuous flow of stock, by recirculation with pump, with wide bars, with various speeds, etc. To keep up with increased machine production, the installation of jordans or high speed refiners was the natural thing for the paper maker to turn to. In consequence, we find the paper trade today largely "jordan-minded."

On the other hand, let us ask the leading question again. "Can the same results be obtained as with a beater," and at what power cost? In every case where paper is "jordan made," both the power and furnish cost is high. For example, in one folding boxboard mill where jordans are used exclusively after pulping, the total beater room connected power for daily capacity of 125 tons is 1,560. In the same kind of a mill nearby, where stock is mainly brushed or given a "beating" treatment, the connected power is 1,240 in beater room for 150 tons daily capacity. In a test liner board mill, comparison is made on same tonnage basis between two mills. One with jordan treatment entirely used 1,250 connected horsepower, while another with properly beaten stock before jordaning used 860 connected horsepower. In the latter case, the beaters are old style Hollanders, which means a still further improvement with modern type of beater like Thorsen-Héry.

In conclusion, let us remember that the power consumption when treating hard kraft stock is 50 h.p. per ton per 100 points (Canadian freeness scale) development, with short beating cycle and high total stock development values.

Over one hundred of these beaters are in operation at the present time in England and Continental Europe on all grades of stock, twenty-seven (27) in one mill, and several mills using the beater exclusively.

Figs. 6a and 6b show photomicrographs of fiber prepared in Thorsen-Héry and Hollander type beaters.

Fig. 6A
Best Standard Hollander kraft pulp, 6 hours. 130 hp. hours per ton per 100 lbs.

Fig. 6B.
Thorsen-Héry beater kraft pulp, 3 hours. 50 hp. hours per ton per 100 lbs.

Invert Sugar As A Plasticizer In Paper*

By N. R. Pike[1]

Abstract

An outline of current practice regarding the use of invert sugar as a plasticizing agent together with a comparison with glycerine as to their respective effectiveness.

The constant search conducted by paper manufacturers for a low cost plasticizer or softening agent which could be easily applied to a wide variety of papers now seems to have been rewarded to a great extent by the constantly increasing use of standardized invert sugar.

It is true that small amounts of invert sugar were being used in various papers at the time of the World War, when, due to the restrictions regarding the use of glycerine and its then prohibitive cost, tentative efforts were made to replace it, with the less expensive invert sugar. These tentative efforts were greatly handicapped by the lack of time for complete investigation resulting from the war time press of orders and by the absence of any widespread knowledge of the properties of invert sugar, its action as a plasticizing agent and the proper methods for securing maximum results.

It, therefore, followed that at the close of the war, when the restrictions were removed and glycerine was once more available, invert sugar was for a time forgotten. However, with the arrival of the highly competitive days of the depression and the consequent necessity of reducing production costs with no sacrifice of quality, invert sugar was once more in demand as a plasticizing agent.

During the past few years the problem of plasticizing various types of paper with standardized invert sugar has been receiving very serious consideration, not only by paper makers but also by the manufacturers of invert sugar, who have been constantly experimenting to define the limitations of the material as a plasticizer and to find the best procedures for insuring maximum results.

That these efforts have not been in vain, is testified to by the fact that standardized invert sugar has now taken a definite place as a raw material in some fourteen industries, among which industries paper making is rapidly becoming one of the largest consumers.

Before entering into a detailed account of the various types of paper in which invert sugar has found a place, it would seem advisable to discuss, (1), the need for plasticizing paper and, (2), the action of the various agents in securing the desired results.

Papers Plasticized

There are, of course, several types of paper in which the need of adding an ingredient to secure a softer, more pliable product, with changed strength characteristics, has always been recognized. Into this class fall the different grades of glassine, the various kinds of coated and glazed papers, and various conversion products, such as gasket and gummed papers. It is obvious, that a highly hydrated fiber such as is used for glassine, will produce a stiff tinny sheet which must be softened before it can be used to advantage in bags or wrappers. Likewise, a paper coated on one or both sides with pigment which has been bound to the fibers by means of a casein glue, will require the addition of a plasticizer to the coating mixture to prevent excessive stiffness and to reduce the tendency towards cracking on folding. It is also obvious that a glue treated sheet, such as a gasket or gummed paper, must be plasticized in some manner to obtain the necessary degree of flexibility and prevent the glue from crystalizing at low humidities. In the last instance, it is rather a case of softening the glue than the paper on which the glue is spread.

Aside from these cases where the need for a plasticizer is generally recognized, there are other products, the number of which is continually increasing, where plasticizing has been found to be beneficial. This has been brought about by the discovery that plasticizing is no longer the expensive proposition that it formerly was. Among these products we may list surface-sized papers; paper towelling, wrappers, particularly waxed bread and candy wraps; base stock for window shades and oil cloth; lacquered papers; decorative crepe and other specialties, as well as various types of board products.

Mechanics of Plasticizing

Very little has been published as to the theory and mechanics of plasticizing. Possibly, we are safe in assuming that a paper is made more flexible through a lubrication of the fibers forming the sheet, permitting them to better adjust themselves to the stresses set up when the sheet is bent or folded. Whether this lubrication is entirely the surface of the fibers, allowing them to more easily slip past each other, or whether the plasticizing agent actually penetrates the fiber itself, does not seem to have been as yet determined.

This lubrication of the fibers is brought about either by increasing the moisture content of the paper or by adding a substance with actual lubricating properties.

The plasticizers generally used fall roughly into three classes: (1) substances having lubricating properties but little or no hygroscopicity; (2) hygroscopic salts which have no lubricating value; and (3) substances possessing both lubricating and deliquescent powers. The second class of agents is not very satisfactory and is but little used. The first class contains the various essential oils and the lately developed water miscible mineral oils. These agents are most widely used in coated and glazed papers and are, in general, rather expensive.

It is the purpose of this article to concern itself with the third class of plasticizing agents—namely, those materials which are hygroscopic in nature and tend to raise the moisture content of the paper as well as exerting a lubricating action. This group contains invert sugar, glycerine, the various glycols and corn syrup, as well as the more recently introduced mannitol and sorbitol. For general use it will be found that these last two, together with the glycols, are too high in cost to permit of practical application. This leaves glycerine and the two sugar products: invert sugar and corn syrup.

The last named is the least expensive of the three. It is also the lowest in hygroscopic power and the softening effect produced by its use is not as lasting as that of the more active invert sugar and glycerine. The change which takes place in the moisture content of plasticized paper as compared to untreated paper is a subject of prime importance to the manufacturer and one which has not received the attention it deserves. Most previous investigations of changes in moisture content have dealt with unplasticized

* To be presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 17 to 20, 1936.

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paper, but with the growing use of softening agents of a hygroscopic nature it becomes imperative to know more about the effect of these agents on moisture retention.

Glycerine in Invert Sugars

With this in mind, work has been under way and the data so far accumulated show that the addition of a hygroscopic plasticizer does not always produce the result which would naturally be expected. Table I gives the results of some preliminary experiments in determining the percentage of moisture in both treated and untreated papers at various controlled humidities.

TABLE I

Sample		Per cent Plasticizer	20% R.H. % H_2O	40% R.H. % H_2O	50% R.H. % H_2O	60% R.H. % H_2O	80% R.H. % H_2O
Unsupercalendered greaseproof	A	0	3.30	5.28	6.49	7.11	11.7
	B	0	3.10	4.96	6.17	6.86	11.7
Treated with regular Nulomoline	A	4.9	2.63	4.54	5.80	6.87	11.9
	B	5.0	2.67	4.54	5.82	6.54	12.0
Treated with Yellow, distilled glycerine ...	A	5.2	2.70	4.69	6.18	6.92	13.8
	B	5.4	2.64	4.65	6.15	6.94	13.8

The base stock used in making these tests was unsupercalendered grease-proof for glassine. Samples were dipped in water solutions of (1) glycerine and (2) invert sugar of sufficient concentration to permit of a retention of 5 per cent actual plasticizer in the finished samples. This was done by use of the proper strength solutions and by passing the dipped samples through wringer rolls set to remove any excess. Blank samples were dipped in plain water, passed through the rolls and dried.

The three sets of samples in duplicate were allowed to come to equilibrium in an atmosphere controlled to 20 per cent relative humidity at 70 deg. F., by means of sulphuric acid. Weighings were made at intervals until equilibrium was reached. The same determinations were made at humidities of 40, 50, 60, and 80 per cent. These determinations were very carefully carried out and the results can be presumed to be reliable.

A study of the tabulated results and of Fig. 1, where the results are graphically shown, leads us to the conclusion that the addition of hygroscopic plasticizers to paper

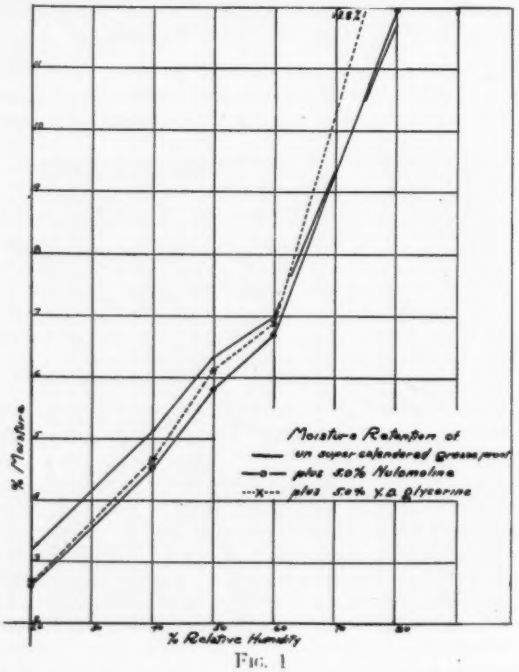

FIG. 1

tends to cut down the amount of moisture retained until the conditioning humidity has passed 60 per cent. This conclusion is very interesting in view of the fact that when the retention of plasticizer is increased the treated samples run ahead of the untreated paper in moisture retention. For instance: a sample containing 25 per cent invert sugar was found to hold 10.5 per cent water at 60 per cent r.h. compared to 6.98 per cent water for the blank. An even larger differential is obtained in the case of glycerine treated samples when the percentage of glycerine in the paper is increased.

We should not lose sight of the fact that the samples treated with either agent are much softer than the blank at any humidity and for any amount of plasticizer retained. This bears out the assumption that plasticizers do not depend solely on an increased moisture content for their effect. The degree of softness obtained will be influenced by several factors which must all be taken into consideration before a clear concept of the matter can be reached. These factors are: (1) the amount of plasticizer added; (2) the nature of the plasticizer; (3) the moisture content of the sample at the time of examination. A fourth factor which is closely related to moisture content is the humidity of the atmosphere when the softness comparisons are made.

Comparing the moisture retention of paper containing invert sugar with that of paper containing glycerine, we find that the two samples hold comparable amounts of moisture at humidities up to approximately 50 per cent and that in the higher ranges considerably more moisture is absorbed by the glycerine treated sheets. It is well known that paper plasticized with glycerine develops a soggyness and undesirable feel at high humidities. This objectionable characteristic does not appear when the plasticizer used is invert sugar.

Considerable work has been under way with the object of accurately determining the moisture retention of the plasticizers themselves and plotting curves for controlled humidities. This work has progressed slowly, due to the length of time necessary to insure reaching complete equilibrium at any definite humidity, and at present is not complete. Enough figures have been secured, however, to show that invert sugar and glycerine hold comparable amounts of water from 0 to 50 per cent r.h., and that from 50 to 100 per cent r.h. the water absorbed by the glycerine is far in excess of that taken on by the invert sugar. This confirms the results shown in Table I, and Fig. 1.

Application of Plasticizer to Paper

The largest users of plasticizer in the paper industry have been, and possibly always will be, the makers of glassine and wrapping stock for waxing. It is therefore, fitting to discuss the application of plasticizer to those products before passing on to other papers where the use of softening agents is not as wide spread or standardized. The methods by which a plasticizer is introduced into a sheet of glassine vary somewhat and, depending on the procedures followed, different results are obtained, the difference being not so much in kind as in degree. The chief difficulty lies in securing an even distribution of plasticizer throughout the entire sheet. An uneven distribution invariably results in streaks when the paper is supercalendered and also in a product which will be found to vary considerably in moisture retention and strength characteristics.

Probably the best method is to apply the plasticizing solution to the sheet while it still contains considerable moisture and to distribute the plasticizer and squeeze it into the sheet by means of a size press. The amount retained

is controlled by the strength of solution used and the pressure applied by the press rolls. This method not only produces a very homogenous sheet but has the advantage that it is a continuous process and that very little plasticizer is lost.

Another common method is to apply the plasticizing solution to the dry sheet by means of the various dampening machines on the market. This method requires a separate operation due to the fact that the brushes of the machine apply the solution to the sheet in the form of separate drops or particles. This uneven distribution necessitates the rewinding of the sheet and its conditioning for several hours before supercalendering. It has been found that if this conditioning is done in a warm atmosphere and a tightly wound roll, the plasticizer will permeate throughout the sheet and good results will be obtained.

Other methods are the application of the plasticizer to the dry sheet by means of a kiss roll or by passing the semi-dry sheet through a size tub containing the solution, followed by squeeze rolls to remove the excess liquid. This last operation produces a very good distribution of plasticizer but is also apt to result in serious wrinkling troubles unless the proper mechanical precautions are taken.

Change in Strength of Paper

Table II will serve to give some idea of the changes that take place in the strength characteristics of a glassine when plasticized. In this case the plasticizer was applied to a dry sheet of unsupercalendered grease proof paper by means of an air spray. The sheet was rewound and conditioned about 10 hours at 70 deg. F.

TABLE II

(Tests made at 60 per cent R.H.)

Sample			Elmendorf tear		Folding endurances		Tensile, lbs. per sq. in.		Per cent stretch		Points
Per cent plasticizer retained	Basis weight	Per cent H_2O	W.	A.	W.	A.	W.	A.	W.	A.	Mullen
Blank	20.6	6.98	6	8.5	230	54.4	14.4	6.4	1.5	1.3	15.1
6% invert sugar	24.5	7.0	9	11.5	330	98.5	11.2	5.2	2.1	2.6	13.8
6% glycerine...	23.2	7.25	8.8	11.2	342	106	11.0	4.8	1.7	2.8	12.4
3% invert sugar } 3% glycerine }	23.9	7.20	9	11.5	338	100.4	11.0	4.9	2.0	2.6	13.3

These figures show a comparison between the results obtained by using either invert sugar, glycerine, or a mixture of the two. No attempt was made to indicate the relative softness of the samples. It will be found that invert sugar is not as efficient as glycerine in cases where extreme softness is needed. In such cases it has been found possible to obtain a close approximation to the desired result by means of a mixture of invert sugar and glycerine, the cost differential being such that the necessary degree of softness is arrived at more economically than by the use of glycerine alone. The use of a mixture of the two plasticizers also eliminates the tendency of the finished product to become damp and soggy to the touch in atmospheres of high humidity, as is the case when glycerine is used alone.

When the plasticizer is applied to the sheet by means of a dampening machine or a kiss roll, the stock has already been dried to a low moisture content. This forms a sheet into which the solution of plasticizer does not penetrate as well as is the case when the solution is made earlier in the process and before the fiber has been dried out so thoroughly. As is to be expected, more of the plasticizer remains on the surface of the sheet and, if the agent used is entirely invert sugar, sticking trouble is apt to occur at the supercalender, the sugar gradually building up on the paper rolls and eventually causing trouble. Using a hot solution of plasticizer will partially overcome this difficulty as the lowered viscosity of the solution greatly aids the penetration. The temperature of the solution may be as high as 150 to 160 deg. F. The addition of a wetting agent is also helpful but is apt to cause trouble due to foaming. A better but more expensive remedy is to use a mixture of invert sugar and glycerine.

It is hardly necessary to say that when the plasticizer is applied by size press or size tub methods, a much better penetration is obtained, less of the material remains on the surface and consequently the sticking trouble is not encountered.

Nearly everything that has been said about invert sugar as a plasticizer for glassine also applies to imitation glassine and to bread and candy wrappers which are to be subsequently waxed, either with or without supercalendering. Of course, due to the different treatment of the fiber, the strength characteristics will vary. The same methods of applying the plasticizer are in use, however, and the same general changes in strength and pliability will take place on the addition of the softening agent.

The use of a plasticizer in these types of wrappers has not been as wide spread as should be the case, due primarily to the fact that mills making these papers are not equipped to incorporate the plasticizer by the correct methods. Beater application has been tried but was not successful. More will be said later on as to the advisability of adding invert sugar to the beater.

Plasticizers for Coated Papers

Another class of paper products where plasticizers are widely used is found in the coating and glazing industry. Here the addition of small amounts of softening agents to coating mixtures is such a well established custom that it is hardly necessary to devote much time to a discussion of the various reasons as to why such softeners are necessary. Briefly, the purposes for which the addition is made are these: (1) to reduce excessive curling of the sheet during drying operations; (2) to eliminate the forming of pin holes or bird's eyes in the coating by producing a smoothly spreading mixture which will be more easily spread on the paper by the coating knife or brushes and, (3) the softening of the casein film binding the pigment to the fibers, thus rendering the coating more flexible and less apt to crack on folding, particularly after storage in dry conditions.

Various agents have been used to obtain these results, among them being: glycerine, sulphonated castor oil, pine oil, ethylene glycol and corn syrup. Of late years these agents have been replaced more and more by invert sugar. This has been caused mostly by the low cost of invert sugar as compared to the oils, glycerine and glycol. The amounts of invert sugar needed to produce results comparing favorably with the other agents are such that savings in production costs can be secured without sacrificing quality. Here again, invert sugar has been replacing the less expensive corn syrup because its hygroscopicity is so much greater that more lasting results are obtained.

The slightly tacky nature of invert sugar suggests that it may be of some assistance to the casein in binding the pigment. Laboratory and mill trials have been run which seem to bear out this contention. Table III shows the results of graded wax tests made on laboratory samples on which the amount of casein added was varied to determine the effect of the invert sugar.

The results shown in the table have been confirmed independently by impartial observers, both on laboratory made and mill made samples. It is apparent that there is a good possibility of replacing part of the casein size with invert sugar, thus producing a coated paper in which the softener serves the double purpose of promoting flexibility and freedom from curling, while at the same time raw material costs are lowered.

It will be noted that there is no gain in sizing effect

when the percentage of invert sugar is increased from 3 to 5 per cent, indicating that there is a distinct maximum which cannot be profitably exceeded. To those manufacturers who are skeptical about eliminating any of their customary casein contents, it should prove a comforting thought that at least the invert sugar is not detracting from the sizing value of their glue.

Invert sugar is best added to the coating mixture in a water solution in the same way and at the same time as other softeners. It has been found to have no adverse effect on the printability of the finished product.

TABLE III

Pounds casein per 100 pounds of clay	Wax breaks clean			Slight fracture of coating			Coating peeled			Coating removed with some fiber		
	Blank	3% Nulomoline	5% Nulomoline	Blank	3% Nulomoline	5% Nulomoline	Blank	3% Nulomoline	5% Nulomoline	Blank	3% Nulomoline	5% Nulomoline
9.0	3—	3—	3—	4	4—	4—	5	5	5	5	6	6
8.0	2	3—	3—	3	4—	4—	4	5	5	5	6	6
7.0	0	2	2	0	3	3	1	4	4	3	5	5

Note: The figures in the body of the table represent the No. of the wax required to give the test.

It is unfortunately true, that manufacturers of fine papers have been, and the majority of them still are, hesitant about adding any material to their product which will have any tendency to reduce the stiffness and rattle. Naturally, the addition of a plasticizer to a stiff paper is bound to reduce somewhat the degree of stiffness in the finished product. Nevertheless, the increased folding and tearing strengths to be obtained by the addition of small amounts of standardized invert sugar to the sheet are factors which have been found beneficial in a number of mills.

These mills have reported substantial gains in folding and tearing strengths attendant on the use of invert sugar. The gains range from 25 to as high as 100 per cent. The loss in stiffness is, of course, proportional to the amount of plasticizer added. It has been found, however, that as much as 25 per cent can be added to the folding strength without detracting seriously from the rattle.

Another effect of the invert sugar addition is found to be an improvement in the surface of the product. Fuzz is reduced to a minimum and the paper is much less likely to give trouble on that account during printing.

The best and most practical method of applying the invert sugar to a fine paper is to incorporate the plasticizer with the prepared surface, size and apply it during the tub sizing operation. On papers which are beater sized only, it is possible to add the plasticizer in the form of a dilute aqueous solution by means of a size press or size tub.

Beater Application of Invert Sugar

Efforts to apply invert sugar along with beater size have thus far been unsuccessful. Considerable work has been done on this problem, leading to the conclusion that a material, such as invert sugar, which is highly water soluble and cannot be precipitated on the fibers, cannot be retained in sufficient quantity to produce results without adding an excessive amount to the beater. Table IV shows the results of tests on a series of hand-made sheets. No attempt was made to measure the actual amount of invert sugar retained in the samples but it is very apparent that any appreciable increase in folding strength requires the addition of a prohibitive quantity of plasticizer.

It has been suggested that the beater application of invert sugar can be made practical by means of suitable pH control. This method has been checked by several observers with results leading to the conclusion that the method

TABLE IV

	Blank	3% Nulomoline based on dry weight of fiber	5% Nulomoline	8% Nulomoline	10% Nulomoline	15% Nulomoline	20% Nulomoline	25% Nulomoline
Beating time, min.....	30	30	30	30	30	30	30	30
Slowness—(S-R)	38	38	38	38	38	38	38	38
Basis weight (24x36-500)	75.1	72.2	73.2	74.1				
Mullen strength	62	60	63	62.				
Folding strength, Schopper double folds	1914	1577	2060(?)	1754				
Basis weight	80.5	....	....	....	78	80.5	78	80.5
Mullen strength	59	....	....	....	54	58	60	58
Folding strength	1474	....	....	....	2374	1122	1060	899

Furnish: 16.6 pounds bleached sulphite; 3.0 pounds clay; 0.26 pound rosin (dry); and 0.30 pound alum.

is not practical. One investigator reported that with an addition of 3 per cent invert sugar, (based on dry fiber), and the pH of the furnish controlled to 5.9 by means of sodium aluminate the following results were obtained. Folding strength of blank 1561, of treated sample 1587. Mullen strength of blank, 62, of treated sample, 60.

The effect of invert sugar in reducing the tendency of coated paper to curl has already been mentioned. It has also proved effective in reducing curl on gummed papers and onion skin. These facts lead to the inference that an offset paper containing invert sugar will not only have better folding and tearing strengths but will lie flatter and give less trouble during lithographing operations. Several mills have actually been using invert sugar in various types of offset paper for some little time and have reported that the inferred effect does indeed take place. The subject has not, however, received the extended investigation which is warranted. Recent preliminary studies of the effect of invert sugar in reducing expansion of fibers as the humidity is varied, indicate a substantial decrease in the degree of expansion. Table V shows the results of expansiometer tests made on samples containing approximately 5 per cent invert sugar.

TABLE V

Per cent relative humidity	Per Cent Expansion			
	Blank		5 per cent Nulomoline	
	Machine direction	Across	Machine direction	Across
30	0.31	0.34	0.23	0.29
40	0.33	0.43	0.24	0.36
50	0.38	0.48	0.29	0.42
60	0.43	0.57	0.34	0.50
70	0.45	0.69	0.36	0.62
80	0.54	0.99	0.42	0.90

The results show that the addition of the invert sugar has produced a sample which expands only 78 per cent as much as the untreated sample in the machine direction and 88 per cent as much in the cross direction as the humidity increases from 40 to 60 per cent. When these figures are examined in conjunction with the moisture retention data shown in Table I and Fig. 1, it becomes increasingly evident that there is a need for considerable research along these lines. The amount of invert sugar necessary to secure optimum results has not as yet been accurately determined, but the indications are that a retention of between 1 and 5 per cent is the correct amount. The addition is, of course, made during the tub-sizing operation.

In conclusion it should be mentioned that the whole subject of plasticizer in paper is still in its infancy. New types of paper in which plasticizers play an indispensable part are being constantly developed; new methods of applying softening agents are being discovered; new types of plasticizers are being examined and applied to papers which have never before been so treated; and the paper maker who wishes to keep abreast of the times cannot afford to ignore the changing concepts of paper manufacture.

Developments In Paper Testing During 1935*

By B. W. Scribner[1]

Following are the more important developments in paper testing, which have come to the author's attention during the past year. The numbers refer to the publications listed at the end.

Physical—General

W. M. Munzinger described an improved instrument for testing the bending strength of artificial leather *(1)*. The Gurley R. D. stiffness tester was described. In this tester, the test specimen is clamped in a movable arm and dragged over the top of a weighted pointer until the bending of the paper releases the pointer *(2)*. J. d'A. Clark discussed the various methods proposed for testing stiffness and described a new method which depends on the overhang of a strip which will just fall over in the direction turned when the clamped end is rotated through a right angle *(3)*. C. A. Minor and J. E. Minor related stiffness data obtained with the Gurley and the Suvant testers to other physical properties of papers and to manufacture variables *(4)*. Davis presented nomographs for facilitating calculations involved in J. d'A. Clark's procedure *(5)*.

Considerable attention was given to the evaluation of the printing properties of paper. In a TAPPI subcommittee report, B. L. Wehmhoff gave the results of a study of the use of density, oil penetration, oil absorption, and printing smoothness for this purpose, and recommended their adoption by TAPPI as tentative standards *(6)*. J. Bekk discussed the use of his smoothness tester *(7)*, *(8)* and in another article *(9)* the relation of smoothness, softness, resistance to picking, power of absorption, strike through, dusting, and abrasive constituents, to printing quality. F. M. Williams gave a description of his smoothness and formation tester and illustrated some applications of it relative to printing properties *(10)*. W. G. Dodge and C. E. Tarvin discussed the use of a new form of smoothness tester, a penetration test, and an opacity test for testing the printing quality of newsprint *(11)*. H. H. Grantham and W. Ure investigated oil permeability methods for testing newsprint and found the oil-drop absorption test to be the most promising one *(12)*.

The various forms of permeability tests received much attention. A new form of pipette for delivering accurately a small amount of water in testing bibulous papers according to the TAPPI standard, was described by S. W. Reese and M. A. Youtz *(13)*. I. I. Kovalevski discussed various methods of testing the degree of sizing of paper and proposed a test based on the application of a drop of water and benzene to the surface of the paper, and measurement of the angle of contact. The results are said to correspond with those of the ink-line method *(14)*. Various procedures and apparatus for measuring the transmission of water vapor through paper were described by W. H. Sharch and A. G. Scroggie *(15)*, by W. Staedel *(16)*, and by D. K. Tressler and C. F. Evers *(17)*. G. A. A. Albert reported the results of a study made to develop a satisfactory test for determining the penetration characteristics of paper with phenolic resin varnishes *(18)*.

In the field of strength testing, F. Haury and H. Bomcke described a new so-called "through-tear" tester *(19)*. Lhomme and Argy described a new French bursting tester designed particularly for testing corrugated board. A novel feature is that no clamping pressure is applyed, thus the breaking-down of the corrugations is prevented *(20)*. In a subsequent report they discuss the influence of the size of the test specimen, the rate of the testing operation, and the characteristics of the rubber membrane, on the test results *(21)*.

Fiber boards and fiberboard products received attention. E. C. John presented a comprehensive survey of methods used for testing fiber building boards, which consist of static bending, impact hardness, pressure hardness, and fire resistance *(22)*. V. L. Chrisler and W. F. Snyder described the methods used at the National Bureau of Standards for making sound-transmission measurements of acoustical boards and gave some representative data *(23)*. A new research laboratory at Princes Risborough, England, is being opened for testing boxes and shipping containers, and the testing methods and equipment were described *(24)*. R. H. Baechler suggested the use of a 0.1 percent aqueous solution of methyl red for counting the plies in fiber board *(25)*. E. Dahill pointed out the necessity of standardization of methods for testing fiber containers *(26)*. A. P. Kivlin discusses the subject of damaged shipping containers and the use of the drum, compression, and bursting tests for determining the probable serviceability of containers *(27)*.

E. Sachsenberg and G. Pahlitzsch gave an experimental procedure for testing the adhesiveness of materials used for sealing packages *(28)*. V. Tuma recommended the use of a circular cutter, designed for textiles, for finding the basis weight of paper *(29)*. The Committee on Physical Standards of the Technical Section of the Canadian Pulp and Paper Association recommended that pulp and paper testing results issued by the Forest Products Laboratories of Canada be expressed in metric units *(30)*. F. T. Carson discussed the maintenance, calibration, and use of paper testing instruments *(31)*, and the general objectives and method of attack for the logical development and use of paper testing methods *(32)*.

Optical

Much advance was made in reflectance measurements. F. V. discussed photo-electric color comparison and described the colorimeter designed by Toussaint *(33)*. G. S. Faucett discussed colorimetry and various instruments used for color measurements *(34)*. E. Witte described the design and use of the "Leukometer" for color measurements *(35)*. J. Razek gave an outline of the spectrophotometric method of color analysis *(36)*. D. B. Judd suggested a method for determining whiteness in paper, which makes use of a color diagram on which equal distances in any direction refer to equally perceptible color differences *(37)*. R. S. Hunter discussed the measurement of reflection intensities as related to gloss, brightness, opacity, lightness, color, and surface texture of pulp and paper *(38)*. F. Anselm and F. Wurstleir described a new apparatus for photometric and colorimetric measurements by applying the photometric inverse square law *(39)*. J. L. Michaelson also described a new reflection meter which is said to be an objective instrument of high sensitivity and accuracy for measuring the visible spectral reflection characteristics of paper *(40)*. M. N. Davis discussed an in-

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strument designed for the brightness grading of paper *(41)*, and L. C. Lewis gave a discussion of the definition of brightness relative to the same instrument—the General Electric Reflection Meter *(42)*. F. A. Steele shows the mathematical relationships between basis weight, reflectance, contrast ratio and other optical properties, and presents charts by means of which values for one property can be calculated to those for another *(43)*. An extension of this discussion was given by D. B. Judd *(44)*. O. Kress and H. W. Morgan described the modified Oxford glossmeter, which is a photo-electric instrument. It is said to show distinct advantages over the polarization glarimeter *(45)*. M. N. Davis, W. W. Roehr, and H. E. Malmstrom described the design of an instrument for measurement of paper formation of uncoated papers. Data are given to show the connection between its readings and visual grades obtained by methods in use by code grading committees *(46)*.

The microscopy of paper received attention. A. K. showed the applicability of the comparison microscope for reflected light, developed by E. Stach, for testing the surface of paper *(47)*. New developments in the use of reflected light in the bright and dark field were reviewed by F. Hauser *(48)*. J. B. Calkin wrote a revision of the section of the TAPPI publication, Paper Testing Methods, dealing with microscopical examination of paper, which contains much new material *(49)*. He also directed attention to the importance of using standard dyes for fiber differentiation, and called attention to the standardization of dyes by the Biological Stain Commission, *(50)*. J. H. Graff described new stains developed by him for differentiation between coniferous, bast, and leaf fibers, between rag and hardwood fibers, and between various classes of coniferous and hard-wood fibers *(51)*. Methods of fiber length measurement were described by W. Brecht and H. Mory. A projected image of the fibers was found desirable *(52)*. In an article by J. H. Graffe, the factors involved in the accuracy of fiber analysis were discussed. These included a standard method for preparation of slides, a uniform count method, the accuracy to be expected from a single analysis, and the uniformity of a fiber furnish across the machine direction of a sheet of paper *(53)*. L. Vidal and P. Coldsmid presented procedures for determination of amount of wool fibers, which is said to be accurate to about 5 per cent *(54)*.

Interest in the possibilities of fluorescence analysis continued. In a review of developments by A. Kufferath, he showed its application to indicating whether sulphite waste liquors are present in tanning extracts, differentiation between sulphite, soda, kraft, manila, and rag fibers, and other uses *(55)*. K. Trager discussed the theory of fluorescence analysis and described satisfactory procedures *(56)*. An extensive discussion of this kind was given by J. Grant, who explained its applications to paper, papermaking materials, and papermaking processes *(57)*.

General

J. E. Minor discussed fiber properties, cuprammonium viscosity, alpha cellulose, copper number, acidity and sizing tests relative to chemical control in paper manufacture *(58)*. The theory, method, and precautions to be observed in colorimetric determinations of pH values were outlined by T. T. Cocking and S. K. Crews *(59)*. G. A. Richter reported further results of his studies of accelerated aging tests for stability of papers. He found that results of exposures of papers for 200 days at 38 deg. C. agreed well with those obtained with the commonly used 100 deg. C., 72 hour, oven test *(60)*. D. B. Brooks prepared psychrometric charts which facilitate the calculation of relative humidity *(61)*. H. M. Annis summarized the results from a questionnaire distributed to paper mill chemists to find the methods used to test coated papers and coating raw stock *(62)*. G. F. Bedford described the Phillips color-constancy testing apparatus, which is, essentially a lamp for which is claimed a spectral distribution of radiant energy comparable to that of direct sunlight *(63)*. Various microscopical methods for differentiating genuine vegetable parchment and imitation parchment paper were described by M. Marini *(64)*. Included in French specifications for railroad printing and writing papers are the details of the testing methods used *(65)*. J. J. Trillat and M. Matricon found a Macleod gage satisfactory for cumulative measurement of the quantity of air passed through cellophane under different conditions of humidity *(66)*. A series of simple tests for differentiating the various types of cellulose sheetings were described by H. A. Levey *(67)*. Relative to the code grading of papers, J. G. Strange discussed the development of instruments for the purpose *(68)*. The usual annual progress report of the TAPPI Paper Testing Committee was published *(69)*.

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(65) *Papeterie*, 56, No. 21, 1118 (Nov. 10, 1934).
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IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JANUARY 25, 1936

CIGARETTE PAPER

De Manduit Paper Corp., Pr. Roosevelt, Havre, 69 cs.; De Manduit Paper Corp., Manhattan, Havre, 175 cs.; R. J. Reynolds Tobacco Co., Manhattan, Havre, 75 cs.; Irving Trust Co., Majestic, Southampton, 33 cs.; Champagne Paper Corp., Champlain, Havre, 720 cs.

WALL PAPER

S. K. Lonegren, Drottningholm, Gothenburg, 6 bxs.; F. J. Emmerich, Carinthia, Liverpool, 3 bls.; American Express Co., Nako Maru, Tientsin, 1 cs.; A. W. Fenton, Inc., American Trader, London, 1 cs.; ———, Bremen, Bremen, 4 cs.

WALL BOARD

Johaneson Wales & Sparre, Inc., Drottningholm, Gothenburg, 141 bdls.; Treetex Corp., Liverpool Maru, Hamburg, 2912 bdls.

NEWSPRINT

Jay Madden Corp., Scanmail, Kotka, 175 rolls; ———, Manhattan, Hamburg, 89 rolls.

WRAPPING PAPER

Yardley & Co., American Trader, London, 3 cs.; J. Whitefield, American Trader, London, 2 cs.; Chase National Bank, Drottningholm, Gothenburg, 1799 rolls; Blauvelt Wiley Paper Manfg Co., Drottningholm, Gothenburg, 30 rolls; National Pulp & Paper Co., Drottningholm, Gothenburg, 67 bls., 1745 rolls; R. McBratney, Caledonia, Glasgow, 2 cs.; International F'd'g Co., Black Eagle, Rotterdam, 43 bls.

KRAFT PAPER

Parsons & Whittemore, Inc., Drottningholm, Gothenburg, 1023 rolls.

PACKING PAPER

A. J. Bullinger, Black Eagle, Rotterdam, 9 cs.

FILTER PAPER

Mayer Bros., Inc., Hansa, Hamburg, 75 bls.; H. Reeve Angel & Co Inc., American Trader, London, 7 cs.

PHOTO PAPER

J. J. Gavin, Majestic, Southampton, 6 cs.

SURFACE COATED PAPER

C. Happel, Pr. Roosevelt, Hamburg, 38 cs.; Gevaert Co. of America, Westernland, Antwerp, 55 cs.

BASIC PAPER

Globe Shipping Co., Bremen, Bremen, 24 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Carinthia, Liverpool, 6 cs.

DECALCOMANIAS

Phoenix Shipping Co., Bremen, Bremen, 1 cs.

TRANSFER PICTURES

Rohner Gehrig & Co., Bremen, Bremen, 5 cs.

TISSUE PAPER

B. F. Drakenfeld & Co., Carinthia, Liverpool, 1 cs.; W J. Byrnes, American Trader, London, 3 cs.

COLORED PAPER

Model Wallpaper & Paint Co., Black Eagle, Rotterdam, 4 cs.; D. C. Andrews & Co., Bremen, Bremen, 3 cs.

CARD BOARD

Phoenix Shipping Co., Manhattan, Hamburg, 68 bls.

MISCELLANEOUS PAPER

National Pulp & Paper Co., Drottningholm, Gothenburg, 574 rolls, 56 bdls.; Lunham & Reeve, Inc., Drottningholm, Gothenburg, 66 rolls, 134 bls.; F. L. Kramer & Co., Drottningholm, Gothenburg, 366 bls.; The Borregaard Co. Inc., Drottningholm, Gothenburg, 599 bls., 4487 rolls; Blauvelt Wilet Paper Manfg Co., Drottningholm, Gothenburg, 11 bls.; E. H. Sargent & Co., Drottningholm, Gothenburg, 2 cs.; Keuffel & Esser Co., Pr. Roosevelt, Hamburg, 25 rolls, 13 cs.; E. J. Anholt Co., Nako Maru, Kobe, 7 cs.; Japan Paper Co., Nako Maru, Kobe, 29 cs.; H. C. Davison Co., Nako Maru, Yokohama, 4 cs.; R. J. Saunders & Co., Majestic, Southampton, 15 cs.; Keller Dorian Paper Co., Exochorda, Marseilles, 5 cs.; Chas, Asche & Co., Champlain, Havre, 4 bls.; Irving Trust Co., Champlain, Havre, 8 cs.

RAGS, BAGGINGS, ETC.

———, Carinthia, Liverpool, 215 bls. rags; W. R. Grace & Co., Nako Maru, Shanghai, 150 bls. picker waste; O'Brien Padawer Co., Hoegh Merchant, Shanghai, 100 bls. cotton waste; J. J. Ryan & Sons, Hoegh Merchant, Shanghai, 550 bls. cotton waste; W. Garretson, Hoegh Merchant, Shanghai, 204 bls. bagging; Manufacturers Trust Co., Hoegh Merchant, Shanghai, 100 bls. cotton waste; C. Tennant Sons Co., Hoegh Merchant, Shanghai, 110 bls. cotton waste; W. A. Morschauser, Hoegh Merchant, Kobe, 50 bls. rags; Royal Manfg Co., Hoegh Merchant, Kobe, 50 bls. cotton waste; E. A. Stone & Co., Hoegh Merchant, Kobe, 300 bls. cotton waste; American Cotton Products Co., Hoegh Merchant, Kobe, 100 bls. cotton waste; Hoffman Lion Mills, Hoegh Merchant, Kobe, 120 bls. rags; O'Brien Padawer Co., Hoegh Merchant, Kobe, 100 bls. cotton waste; E. J. Keller Co. Inc., Black Eagle, ———, 179 bls. bagging; Manufacturers Trust Co., Black Eagle, Rotterdam, 43 bls. bagging; Irving Trust Co., Black Eagle, Rotterdam, 63 bls. bagging; Atlas Waste Manfg Co., Black Eagle, Rotterdam, 11 bls. bagging; ———, Liverpool Maru, Hamburg, 111 bls. bagging;

Amtorg Trading Corp., Liverpool Maru, Hamburg, 775 bls. rags, 228 bls. flaxwaste; E. J. Keller Co. Inc., Westernland, ———, 168 bls. bagging; Royal Manfg Co. Westernland, Antwerp, 236 bls. cotton waste; Whaling Waste Products Co., Westernland, Antwerp, 144 bls. jute waste; Irving Trust Co., Westernland, Antwerp, 144 bls. jute waste; Banco Com'l Italiane Trust Co., Cristobal Colon, Bilbao, 85 bls. rags; Banco Com'l Italiane Trust Co., Cristobal Colon, Coruna, 126 bls. dark cottons; E. J. Keller Co. Inc., Exochorda, ———, 283 bls. paper stock; E. J. Keller Co. Inc., Exochorda, ———, 34 bls. bagging; E. J. Keller Co. Inc., Edam, ———, 44 bls. bagging; S. Shapiro & Sons, Scanmail, Gdynia, 72 bls. rags; ———, Scanmail, Gdynia, 62 bls. rags; Lounar Textile By-Products Co., Scanmail, Gdynia, 72 bls. bagging, E. J. Keller Co. Inc., Capulin, ———, 67 bls. bagging.

OLD ROPE

Banco Com'l Italiane Trust Co., Black Eagle, Rotterdam, 225 bls.; Manufacturers Trust Co., Liverpool Maru, Hamburg, 45 bls.; Manufacturers Trust Co., American Trader, London, 54 bls.; Banco Com'l Italiane Trust Co., Cristobal Colon, Bilbao, 165 coils; Banco Com'l Italiane Trust Co., Cristobal Colon, Gijon, 36 coils; Banco Com'l Italiane Trust Co., Cristobal Colon, Coruna, 19 coils; Chase National Bank, Boston City, Bristol, 65 coils; W. Steck & Co., Edam, Rotterdam, 103 coils.

CASEIN

Chase National Bank, Champlain, Havre, 667 bags.

WOOD PULP

Bulkley Dunton & Co., Dagrum, ———, 1375 bls. wood pulp, 275 tons; ———, Dagrum, Hernosand, 600 bls. sulphate, 100 tons; Johaneson Wales & Sparre, Inc., Dagrum, Stugsund, 4250 bls. sulphite, 850 tons; Mead Sales Co. Inc., Dagrum, Stugsund, 750 bls. sulphite, 150 tons; Perkins Goodwin & Co., Drottningholm, Gothenburg, 396 bls. sulphate; J. Andersen & Co., Drottningholm, Gothenburg, 250 bls. sulphite; D. M. Hicks, Inc., Drottningholm, Gothenburg, 240 bls. sulphite; ———, Pr. Roosevelt, Hamburg, 379 bls. wood pulp; M. Sone, Pr. Roosevelt, Hamburg, 1579 bls. wood pulp; Castle & Overton, Inc., Liverpool Maru, Hamburg, 3240 bls. wood pulp, 648 tons; E. J. Keller Co. Inc., Scanmail, ———, 672 bls. wood pulp, 100 tons; Castle & Overton, Inc., Scanmail, Kotka, 2254 bls. wood pulp, 459 tons; Lagerloef Trading Co., Scanmail, Helsingfors, 130 bls. mechanical pulp, 26 tons; M. Sone, Manhattan, Hamburg, 771 bls. wood pulp, 111 tons; Bulkley Dunton & Co., Normandiet, ———, 1250 bls. wood pulp; Bulkley Dunton & Co., Norvard, ———, 3875 bls. wood pulp; Bulkley Dunton & Co., Fordefjord, ———, 1750 bls. wood pulp.

WOOD PULP BOARDS

H. Fuchs & Son, Drottningholm, Gothenburg, 4 bls, 104 crates; Jay Madden Corp., Scanmail, Kotka, 362 rolls, 103 tons; Jay Madden Corp., Scanmail, Kotka, 13 bls., 1 ton; G. H. MacFadden & Bros., Manhattan, Hamburg, 252 bls., 23 tons.

PORTLAND IMPORTS

WEEK ENDING JANUARY 25, 1936

Johaneson Wales & Sparre, Inc., Dagrum, Sundsvall, 125 bls. sulphite, 25 tons; ———, Dagrum, Hernosand, 7500 bls. sulphate, 1250 tons; Gottesman & Co. Inc., Anten, Sweden, 5187 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING JANUARY 25, 1936

Elliott Addressing Machine Co., Nako Maru, Yokohama, 12 cs. paper; ———, Black Eagle, Antwerp, 34 bls. rags; ———, Black Eagle, Antwerp, 33 bls. cotton waste; International Purchasing Co., Black Eagle, Antwerp, 55 bls. old rope; E. J. Keller Co. Inc., Exochorda, ———, 222 bls. paper stock; Gotesman & Co. Inc., Anten, Sweden, 620 bls. wood pulp; E. J. Keller Co. Inc., Pr. Adams, ———, 76 bls. paper stock.

PHILADELPHIA IMPORTS

WEEK ENDING JANUARY 25, 1936

American Sanitary Rag Co., Black Eagle, Antwerp, 76 bls. rags; J. M. Hagy Waste Works, Black Eagle, Antwerp, 52 bls. rags; E. J. Keller Co. Inc., Black Eagle, ———, 72 bls. rags; J. T. Flannery, Exochorda, Alexandria, 250 bls. rags; Castle & Overton, Inc., Edam, Rotterdam, 933 bls. wood pulp; Castle & Overton, Inc., Scanmail, Kotka, 1087 bls. wood pulp, 215 tons; J. W. Hampton Jr. & Co., Scanmail, Kotka, 324 rolls, news print; Johaneson Wales & Sparre, Inc., Scanmail, Gdynia, 1050 bls. wood pulp, 105 tons.

BALTIMORE IMPORTS

WEEK ENDING JANUARY 25, 1936

Bulkley Dunton & Co., Leerdam, ———, 1064 bls. wood pulp; Bulkley Dunton & Co., Gagrum, ———, 4750 bls. wood pulp, 950 tons; ———, Dagrum, Hernosand, 3150 bls. sulphite, 525 tons; ———, Dagrum, Stugsund, 1250 bls. sulphite, 250 tons; ———, Dagrum, Stugsund, 500 bls. sulphate, 100 tons; Johaneson Wales & Sparre, Inc., Dagrum, Sundsvall, 1250 bls. sulphite, 250 tons; Mead Sales Co. Inc., Dagrum, Sundsvall, 16800 bls. sulphite, 2800 tons; Parsons & Whittemore, Inc., City of Havre, ———, 500 bls. wood pulp; M. Sone, City of Norfolk, Hamburg, 660 bls. wood pulp.

NEWPORT NEWS IMPORTS

WEEK ENDING JANUARY 25, 1936

Bulkley Dunton & Co., Karpfanger, ———, 7500 bls. wood pulp; Parsons & Whittemore, Inc., Taurus, ———, 900 bls. wood pulp; Gottesman & Co. Inc., Consul Olsson, Sweden, 1000 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING JANUARY 25, 1936

Gottesman & Co. Inc., City of Newport News, Czecho Slovakia, 672 bls. wood pulp.

NEW ORLEANS IMPORTS

WEEK ENDING JANUARY 25, 1936

E. J. Keller Co. Inc., Jomar, ———, 1069 bls. paper stock.

Get Patent on Cellulose Product

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., January 20, 1936—Notice has been received here from the federal authorities that John Campbell and Robert Quinn, of this city, have been granted a joint patent on their invention of a method of producing a cellulose product. Patent rights have been assigned to the International Paper Company. Application for patent was made a few years ago, and a number of claims to special features were allowed. The invention is described as "the process for the manufacture of a cellulose bulking agent comprising the steps of comminuting regenerated cellulose scrap, treating the comminuted cellulose to remove impurities and drying the so-treated cellulose at a temperature below which cellulosic decomposition products are formed."

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, January 29, 1936.

Demand for the various grades of paper continues fairly persistent and the outlook for the coming year is bright. Sales forces of the leading paper organizations generally look forward to the campaign for 1936 with confidence. Prices are holding to previously quoted levels, in most instances.

The position of the newsprint paper market is unchanged. It is freely predicted by some manufacturers that the consumption of newsprint this year will show a gain of 10 per cent over last year's record as the average size of newspapers will be increased materially on account of the coming national election.

Conditions in the fine paper market are satisfactory, on the whole. Demand for book, cover bond, and ledger papers is fairly active for the season. Prices are steady. Tissues are moving in good volume. The coarse paper market is displaying strength. Paper board manufacturers are gradually speeding production.

Mechanical Pulp

The ground wood pulp market pursues the even tenor of its ways. Manufacturing operations in the United States, Canada and abroad are being maintained in sufficient volume to take care of current requirements and the statistical position of the industry is sound. Prices are generally holding to schedule.

Chemical Pulp

Business in the chemical pulp market is fairly brisk. Kraft pulp continues very firm, with offerings decidedly scarce and prices showing an upward tendency. Manufacturers are booking their requirements for 1937 in many cases. Bleached and easy bleaching sulphite pulp is exhibiting a strong undertone.

Rags

The domestic rag market is showing signs of improvement. Offerings of new cotton rags are limited and prices are firmer. No. 1 white shirt cuttings are in good request both for domestic and export account. Other grades of shirt cuttings are steady. The imported rag market is also attracting more mill interest than of late.

Old Rope and Bagging

Steadiness prevails in the old rope market although the prevailing paper mill demand is somewhat restricted. Supplies of domestic and foreign manila rope are moving slowly. Mixed strings are fairly active. No radical changes transpired in the bagging market. Roofing bagging, however, is firmer and is now quoted at 1.20 to 1.30.

Waste Paper

The paper stock market is showing some signs of improvement. The bright particular feature of the week was the advance of old kraft machine compressed bales which are now quoted at 1.20 to 1.30, compared with the former quotations of 1.10 to 1.20 f.o.b. New York. The higher grades of waste paper are holding up well.

Twine

No further changes have transpired in the local twine market. Demand for the various varieties of twine is well up to average for the time of year. Numerous inquiries are around for future delivery, some of which may materialize into good orders. Despite the usual keen competition, prices are generally well sustained.

Paper Men Organize Robert E. Read, Inc.

[FROM OUR REGULAR CORRESPONDENT]

DEXTER, N. Y., January 27, 1936—A new concern to be known as Robert E. Read, Inc., has been organized here with $100,000 capital to produce egg carriers, plates, dishes and other articles from molded wood pulp, cellulose and other fibers. Plans call for start of operation about June 1 in the old idle mill property of the Warren Parchment Company, which has been purchased by the new concern from John W. Warren. The new company plans to issue only $50,000 of its stock at the present time.

Robert E. Read, president of the company, has been general manager of the Herkimer Fibre Company for several years, in addition to having had experience in an official capacity with the International Paper Company. John A. Remington, for many years general superintendent of the Remington chain of paper mills, will serve as secretary and treasurer. Associated with them as directors are William A. Adams, former sales manager of the Fulton Iron Works, of St. Louis; Allen Curtis, vice-president of the International Paper Company for many years, and Attorney Lee Parsons Davis, of White Plains. Among the principal stockholders are Samuel A. Upham, head of the Brownville Paper Company; Harry S. Lewis, prominent paper mill man of Beaver Falls; Harry P. Gould, head of the Gould Paper Company, of Lyons Falls; Virgil K. Davis, previously interested in the old Newton Falls Paper Company and a former director of the Bagley & Sewall Company.

The property acquired by the new concern has a $338,000 replacement value and $170,900 going value. Officials of the village have reduced the assessment valuation to $25,000 in order to encourage the enterprise, and the plant will be operated by its own electric energy. About four months will be required to install machinery and place everything in good condition for the start of operations.

Riveredge Paper Corp. Chartered

[FROM OUR REGULAR CORRESPONDENT]

SPRINGFIELD, Mass., January 27, 1936—The Riveredge Paper Corporation has been incorporated with a capital of 1,000 shares having no par value. Incorporators are May V. Gould, Springfield; Burleigh A. Annable, Wilbraham, Mass., and Edward L. Fenton, Springfield.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, January 29, 1936.

BLANC FIXE.—Conditions in the blanc fixe market are fairly satisfactory. Prices are holding to schedule. The pulp is quoted at $42.50 to $45 per ton, in bulk; while the powder is selling at 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The position of the bleaching powder market is practically unchanged. Demand is moderately active. The contract movement is normal. Bleaching powder is still quoted at $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN.—The casein market is firm. Domestic standard ground is quoted at 15, and finely ground at 15½; Argentine standard ground at 14¼, and finely ground at 14½; French standard ground at 14¼ and finely ground at 14½ cents per pound, in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. Prices are generally holding to previously quoted levels. Solid caustic soda is quoted at $2.55 to $2.60, while the flake and ground are selling at $2.95 to $3 per 100 pounds, at works.

CHINA CLAY.—The china clay market is displaying strength. Contract shipments are moving in good volume. Imported china clay is quoted at $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at $6.50 to $12 per ton, at mine.

CHLORINE.—Paper mill demand for chlorine is fairly persistent. The contract movement is well up to average for the season. Prices are firm. Chlorine is quoted at $2.15 to $2.55 per 100 pounds, in tanks, or multi-unit cars, at works.

ROSIN.—The rosin market continues to fluctuate. Paper-making gum rosin is quoted at $4.25 and wood rosin at $4.25 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.51 per 100 pounds, in tank cars, at works.

SALT CAKE.—Business in the salt cake market is rather quiet. The contract movement is regular. Prices are firm. Salt cake is quoted at $12 to $13; chrome salt cake at $11 to $12 per ton, at works. Imported salt cake is selling at $12 to $13 per ton, ship side.

SODA ASH.—The soda ash market is exhibiting a strong undertone. Contract shipments are moving freely. Prices are steady. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.20, and in barrels, $1.50.

STARCH.—Most of the business transacted in the starch market is along routine lines. No further price changes have been reported. Special paper-making starch is quoted at $3 per 100 pounds, in bags, and at $3.27 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Demand for sulphate of alumina is excellent for the time of year. Prices are holding to schedule, in most instances. Commercial grades are quoted at $1.35 to $1.50, and iron free at $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton on orders of 1,000 tons or over, on yearly contracts, and at $20 per ton on any smaller quantity over that period. On spot and near-by car loads, the quotation is $21 per ton.

TALC.—Trading in the talc market is moderately active. Contract shipments are moving in fair volume. Prices are steady. Domestic talc is quoted at $16 to $18 per ton, at eastern mines, while imported talc is selling at $23 to $30 per ton, on dock.

Market Quotations

Paper

Rag Content Bond & Ledgers— Delivered Zone 1	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers— Delivered Zone 1	Bonds	Ledgers
No. 1 Sulphite	7.75	8.75
No. 2 Sulphite	6.75	7.75
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

Book, Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.82½	@	—
White No. 1 M. G.	.77½	@	—
White No. 1¼	.62½	@	—
White No. 2	.60	@	—
Anti-Tarnish M. G.	.67½	@	—
Colored	.80	@	—
Kraft	.67½	@	—
Manila	.60	@	—
Unbleached Toilet	2.60	@	3.30
Bleached Toilet	3.94	@	5.26
Paper Towels—			
Unbleached	2.10	@	3.35
Bleached	3.30	@	3.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75

(Delivered New York)

News, per ton—			
Roll, contract	41.00	@	—
Sheets	46.00	@	—
Kraft—			
No. 1 Northern	4.12½	@	4.75
Standard	4.00	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	37.50	@	—
Chip	37.50	@	—
Sgl. Mla. Ll. Chip	42.50	@	45.00
Jute Lined Chip	42.50	@	45.00
Kraft Liners	57.50	@	60.00
White Patent Coated	55.00	@	57.50
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	21.00	@	22.00
Dry	21.00	@	22.00

(F. o. b. Mill)

No. 1 Domestic and Canadian	18.00	@	24.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.60	@	2.90
Division 2	2.55	@	—*
Division 3	2.50	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.05	@	—*
Other Than Easy Bleaching—			
Class 2. Higher than Standard	2.00	@	—*
Class 3, Standard	1.95	@	—*
Class 4, Lower than Standard	1.90	@	—*

(On Dock, Atlantic Ports)

Kraft No. 1	1.80	@	1.85
Kraft No. 2	1.60	@	1.70

(F. o. b. Pulp Mill)

Kraft Domestic	1.75	@	1.80

(Delivered)

Soda Bleached	2.50	@	—

* Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	7.50	@	7.75
Silesias No. 1	5.25	@	5.50
New Unbleached	8.00	@	8.25
New Soft Blacks	3.75	@	4.00
Blue Overall	5.75	@	6.00
Fancy	2.75	@	3.00
Washables	2.00	@	2.25
Mixed Khaki Cuttings	3.25	@	3.50
O. D. Khaki Cuttings	4.00	@	4.25
Men's Corduroy	2.00	@	2.25
New Mixed Blacks	2.75	@	3.00

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.75	@	1.85
Miscellaneous	1.45	@	1.55
Roofing Rags—			
No. 1	1.55	@	1.60
No. 2	1.35	@	1.40
No. 3 (bagging)	1.20	@	1.30
No. 4	.95	@	1.00
No. 5A	.90	@	1.00

Foreign Rags

New Rags

New Dark Cuttings	2.00	@	2.25
New Mixed Cuttings	1.80	@	1.90
New Light Silesias	3.75	@	4.00
Light Flannelettes	4.00	@	4.25
New White Cuttings	6.50	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	2.00	@	2.25
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.70	@	1.80
Linsey Garments	1.95	@	2.05
Dark Cottons	1.50	@	1.60
Old Shopperies	1.00	@	1.05
New Shopperies	1.25	@	1.35
French Blues	2.00	@	2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.20	@	2.25
Domestic	2.15	@	2.20
Wool Tares, light	1.75	@	2.00
Wool Tares, heavy	2.25	@	2.35
Bright Bagging	1.75	@	1.80
Manila Rope—			
Foreign	2.10	@	2.15
Domestic	2.00	@	2.10
Mixed Strings	.85	@	1.00
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.55	@	2.65
Ordinary Hard White No. 1	2.20	@	2.30
Hard White No. 2	2.05	@	2.15
Soft White No. 1	2.00	@	2.10
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag	.65	@	.75
Solid Flat Book	.55	@	.60
Crumpled No. 1	.35	@	.40
Solid Book Ledger	1.50	@	1.65
Ledger Stock	.85	@	.90
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.70	@	1.80
New Cuttings	1.35	@	1.45
Bogus Wrapper	.40	@	.50
Old Kraft Machine— Compressed bales	1.20	@	1.30
News—			
No. 1 White News	1.45	@	1.50
Strictly Overissue	.50	@	.55
Strictly Folded	.32½	@	.35
No. 1 Mixed Paper	.25	@	.27½

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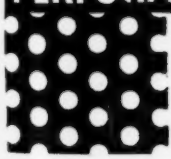

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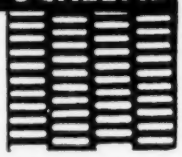

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Twines

(F. o. b. Mill)

(Soft Fibre)

Coarse Polished—

India	.13¼	@	.15¾
Belg. White Hemp	.14¼	@	.17¾
India Compress	.13¾	@	.14½

Fine Polished—

Fine India	.21½	@	.23½
Special	.19½	@	.21½

Unpolished—

Box	.12	@	.12½
Paper Makers	.09	@	.13½
Tube Rope	.10	@	.15½
Wall Paper	.11	@	.14½
Wrapping	.15½	@	.21
Special	.15	@	.15½
Soft Fiber Rope	.12½	@	.12¾

(Hard Fibre)

Bond	.12	@	.20½
Anchor	.11½	@	.13
Manila	.21	@	.2[illegible]

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.12	@	.40
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.07¼
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¾	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	42.00	@	—
Sheets, open	47.00	@	—
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent Coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.70	@	.80
Solid Books	.60	@	.70
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45
Old Newspapers—			
No. 1	.30	@	.35
No. 1 Mixed Paper	.25	@	.30
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.75	8.75
No. 2 Sulphite	6.75	7.75
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, M. F.	5.00	@	—
Book, S. S. & C.	5.25	@	—
Book, Coated	6.15	@	—
Coated Lithograph	6.15	@	—
No. 1 Jute Manila	10.50	@	—
Manila Sul., No. 1	6.75	@	—
Manila No. 2	4.25	@	—
No. 1 Kraft	6.00	@	—
Southern Kraft	5.00	@	—
News Print Rolls	40.00	@	—
Straw Board	40.00	@	45.00
News Board	40.00	@	—
Chip Board	37.50	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.06½	@	.07
New White, No. 2	.04½	@	.05
Light Silesias	.04	@	.05
Silesias, No. 1	.04	@	.04½
Black Silesias, soft	.03	@	—
New Unbleached	.06½	@	—
Washable, No. 1	.02	@	.02½
Blue Overall	.05	@	.05½
Cottons—According to grades—			
Washable, No. 2	.02½	@	.04½
New Blue	.02	@	—
Fancy	.01½	@	.02
New Black Soft	.04¼	@	—
New Light Seconds	.04	@	—
New Dark Seconds	1.10	@	—
Khaki Cuttings—			
No. 1 O. D.	.04	@	—
No. 2 Mixed	.03	@	.04
Corduroy	.01¾	@	.02
New Canvas	.03½	@	.04½
New Black Mixed	.02¼	@	.02½

Domestic Rags (Old)

White No. 1—			
Repacked	3.50	@	4.00
Miscellaneous	2.50	@	3.25
Thirds and Blues—			
Miscellaneous	1.75	@	2.00
Repacked	2.50	@	2.75
Black Stockings (Export)	4.50	@	5.00
Roofing Stock—			
Foreign No. 1	1.10	@	1.20
Repacked	1.30	@	1.50

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.75	@	—
Domestic	2.00	@	—
Manila Rope	2.50	@	—
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	2.00	@	2.25
No. 2	.80	@	.90
Wool Tares, heavy	3.00	@	3.25
Mixed Strings	1.00	@	1.10
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.25	@	2.30
No. 2 Hard White	1.90	@	2.00
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.25	@	1.30
No. 1 Mixed	—	@	.75
Solid Ledger Stock	1.50	@	1.60
Writing Paper	1.00	@	1.10
No. 1 Books, heavy	.55	@	.60
No. 1 New Manila	1.50	@	—
Print Manila	.50	@	.60
Container Manila	—	@	.50
Old Kraft	1.00	@	—
No. 1 Mixed Paper	—	@	.30
Straw Board Chip	.40	@	—
Binders Board Chip	.40	@	—
Corrugated Board	.55	@	—
Overissue News	.60	@	—
Old Newspapers	.40	@	—

BOSTON

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.75	8.75
No. 2 Sulphite	6.75	7.75
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¾	@	.05
No. 2 Kraft	.04½	@	.04¾

(F. o. b. Boston)

Southern Kraft	.03¾	@	.04½

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots)
(Delivered New England points)

News Print Rolls	39.50	@	—
Straw Board, rolls.009	—	@	35.00
Filled News Board	40.00	@	45.00
Chip Board	37.50	@	40.00
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated News Board (Bender)	55.00	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.00	@	2.20
No. 1 Soft White	1.75	@	1.90
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.40	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.85	@	.90
No. 1 Books, heavy	.55	@	.65
No. 1 Books, light	.50	@	.60
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.60	@	1.70
No. 1 Old Manila	.80	@	.85
White Blank News	1.30	@	1.35
No. 1 Kraft	1.10	@	1.15
Mixed Papers	.22½	@	.25
Print Manila	.50	@	.60
Container Manilas	.27½	@	—
Old Newspapers	.25	@	.27½
Overissue News	—	@	.35
Box Board Chips	—	@	.25
Corrugated Boxes	.35	@	.40
Kraft corrugated boxes	.90	@	.95
Screening Wrappers	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.25	@	2.30
Domestic	2.25	@	2.50
Transmission Rope	1.00	@	1.10
Jute Rope	2.00	@	2.50
Jute Carpet Threads	1.00	@	1.10
Gunny No. 1—			
Foreign	2.00	@	2.25
Domestic	1.80	@	2.00
Bleachery Burlap	4.00	@	4.50
Scrap Burlap—			
Foreign	2.00	@	2.15
Domestic	1.90	@	2.10
Scrap Sisal	2.00	@	2.25
Scrap Sisal for Shredding	2.25	@	2.50
Wool Tares, heavy	2.25	@	2.35
New Burlap Cuttings	2.25	@	2.35
Australian Wool Pouches	3.15	@	3.30
Heavy Baling Bagging	2.50	@	2.75
Paper Mill Bagging	1.75	@	2.00
Bagging No. 2	1.25	@	1.50

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.01¾	@	.02
New White No. 1	.06¾	@	.07
New White No. 2	.04	@	.04¼
Silesias No. 1	.04¾	@	.05
New Black Silesias	.02½	@	.03
Soft Unbleached	.06¾	@	.07
Blue Cheviot	5.25	@	5.50
Fancy	.02½	@	.02¾
Washable	.0165	@	.0170
Cottons—According to grades—			
Blue Overalls	5.50	@	6.00
New Black, soft	.04	@	.04¾
Khaki Cuttings	.04	@	.04¾
O. D. Khaki	.04	@	.04¾
Corduroy	.01¾	@	.02
New Canvas	—	@	.05
B.V.D. Cuttings	—	@	.06¼

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.50	@	2.00
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	2.50	@	3.00
Roofing Stock—			
No. 1	1.60	@	1.70
No. 2	1.40	@	1.50
No. 3	1.00	@	1.10

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.85	@	1.90
New White Shirt Cuttings	6.50	@	6.75
Dutch Blues	2.25	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.90	@	—
Old Linsey Garments	2.25	@	2.50
New Silesias	4.50	@	4.75

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.11	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.12	@	—
No. 2 Colored	.09	@	—
Ledgers (sulphite)—			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.50	@	—
No. 2 M. F. (Carloads)	6.00	@	—
No. 3 M. F. (Carloads)	6.00	@	—
No. 1 S. C. (Carloads)	7.00	@	—
No. 2 S. C. (Carloads)	6.50	@	—
No. 3 S. C. (Carloads)	6.50	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown	4.75	@	—
White Wrap	3.50	@	—
"B" Manila	5.25	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft, No. 2	5.40	@	—

(F. o. b. Cars Toronto)

News, per ton—			
Rolls (contract)	39.50	@	—
Sheets	44.50	@	—

Pulp

Ground wood	27.00	@	—
Unbleached Sulphite	42.00	@	—
Book (Class 1)	58.00	@	—
Writing (Class 2)	59.00	@	—
Select (Class 3)	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.25
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.40
Printed Manilas	.50	@	.60
Kraft	1.00	@	1.60
News and Scrap—			
Strictly Overissue	.55	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.06¼	@	.06½
Fancy Shirt Cuttings	.02¼	@	.02½

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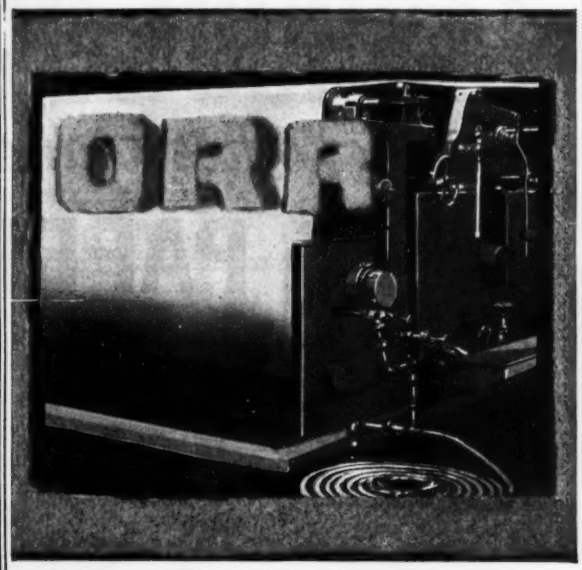
TABLE OF CONTENTS

Canadian Paper Men Meet at Montreal	11
Northern Paper Mills Controlling Interest	12
R. J. Cullen Heads International	13
Toronto Paper Demand Active	14
Paper Box Industry Gained	14
Newsprint Industry's Good Outlook	14
Gefaell Plan Lesser of Two Evils	14
Schroon River Pulp & Paper Co.	14
Philadelphia Paper Demand Good	15
Preliminary Report on Paper Industry	16
District of Columbia to Reorganize	21
Arch. F. Barber Dead	21
Jacob Kindleberger Made Chairman	21
Marcus A. Hanna Dead	21
Schedules of Meetings for Paper Week	22
TAPPI to Hear Plant Physiologist	23
College of Forestry to Dine	23
Superintendents Hold Ladies' Night	27
Boston Paper Business Fairly Good	28
TAPPI Notes	28
Andrews Celebrates 20th Anniversary	28
New England Paper Council Meets	28
S. L. Foster Goes with Union Bag	28
National Paper Trade Program	29
TAPPI Medal to W. H. Millspaugh	29
TAPPI to Consider Non-Fibrous Raw Materials Specifications	29
Arthur S. Cosler with Bauer Bros. Co.	29
Editorial	**30**
N.A.W.M.D. Banquet March 18	31
Production Ratio Report	31
Northern New York Men Optimistic	31
Technical Section	
TAPPI Tentative Annual Meeting Program	33
Copper and the Copper Alloy Metals	35
Report of Subcommittee on Chemical Methods	43
Imports of Paper and Paper Stock	45
New York Market Review	**47**
Miscellaneous Markets	**48**
Market Quotations	**48**

THE PAPER TRADE JOURNAL is indexed in Industrial Arts Index

Want and For Sale Advertisements, 52-53



Clipping the Corners Off the Felt Bill

It is rather significant that recent tests should show Orr Felts outlasting felts with which they were compared—outlasting them, not by hours, but by as much as several days.

Figured over a year's operation, such a difference in durability takes on deep significance—points the way for those interested in curtailing expense wherever it can be sensibly done.

Clipping the corners off felt bills by adopting the particular felt that will deliver the greatest service is well worth the consideration of any mill—and is now receiving that consideration in many of them.

Orr Felts are built to remove water faster and serve longer. They are available in any texture and any size you may require.

A complete line—an Orr for every machine requirement.

The Orr Felt and Blanket Company

Piqua, Ohio

ORR FELTS

How an office manager

BUYS PAPER

HE knows the difference between catalog paper and bond, but it's doubtful if he knows—or cares—much about the intricate processes of their manufacture.

The point is this: he is the office trouble shooter and has found out how to avoid complaints about the stationery. He tests it for "crackle" and texture, but particularly for *whiteness, brightness,* and *opacity.*

The use of Krebs pigments will heighten these qualities in *your* paper stocks. We are equipped to fulfill your opaque white pigment requirements. It will pay you to avail yourself of our complete and dependable service.

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